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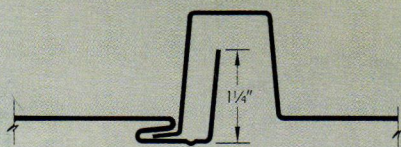
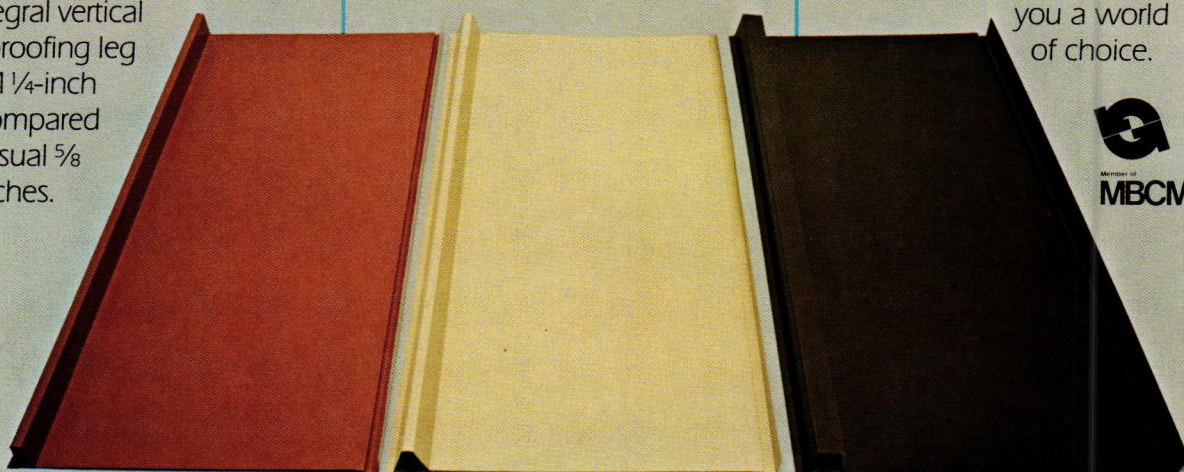
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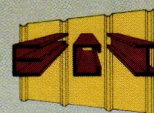


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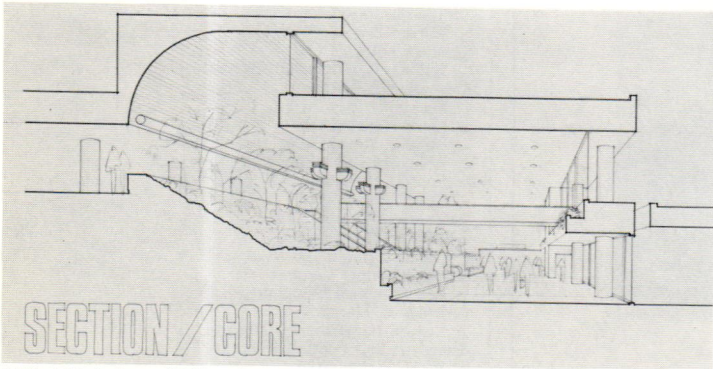
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The Steve Chase Residence, Rancho Mirage. Holden and Johnson/Architects.



5th & Hill Station, Los Angeles. Architect: Harry Weese & Associates.



TWA, LAX. Architect: W. Haas Associates.



King Khaled International Airport, Riyadh, Saudi Arabia. Architect: Hellmuth, Obata & Kassabaum, Inc.

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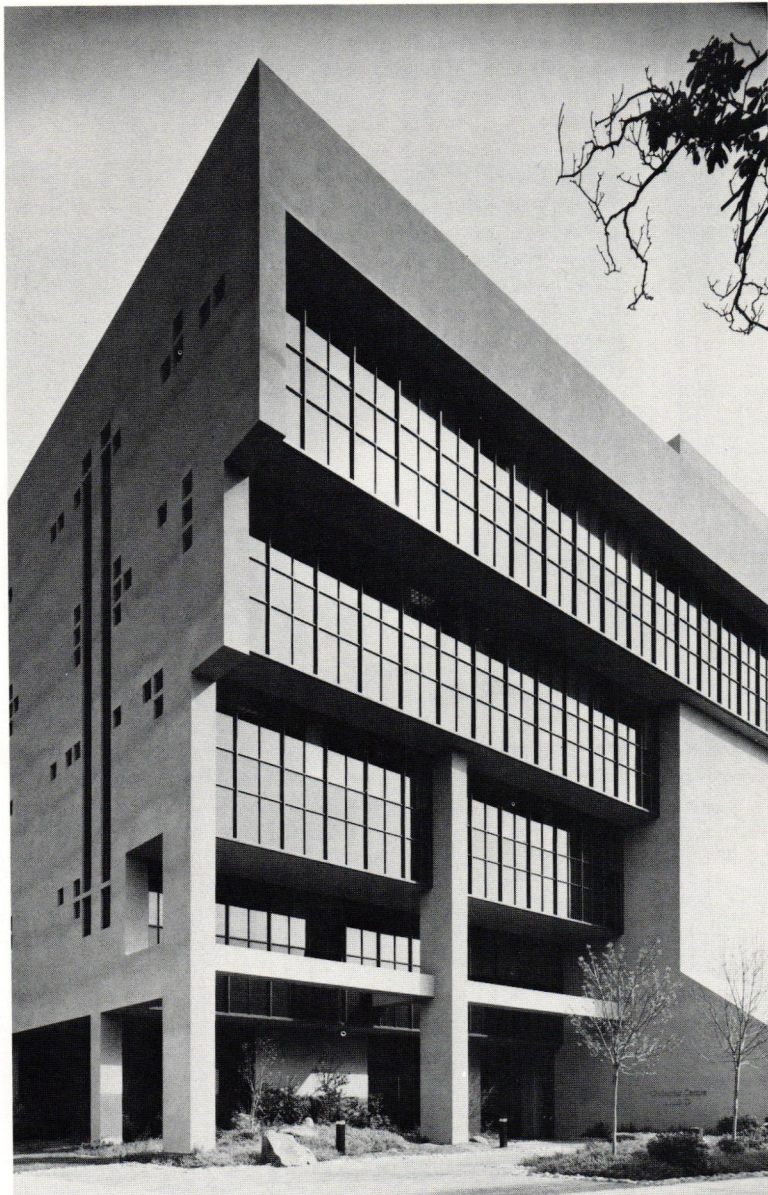
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COVER

Crocker Center and Galleria, San Francisco. Architect: Skidmore, Owings & Merrill. Photograph: Peter Aaron/ESTO.

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Architect: Alan Oshima
Builder: Harbison, Mahony, Higgins
Photo: Ed Asmus

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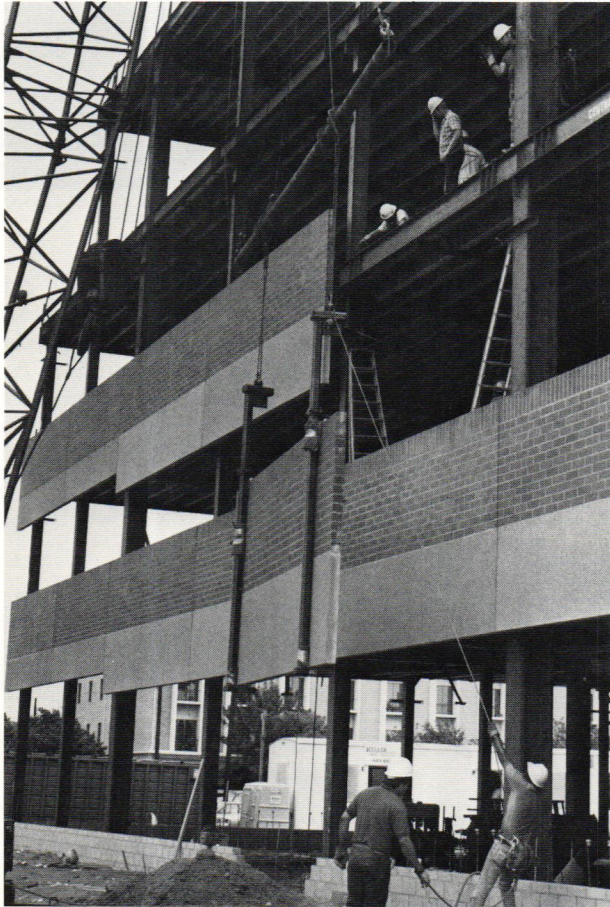
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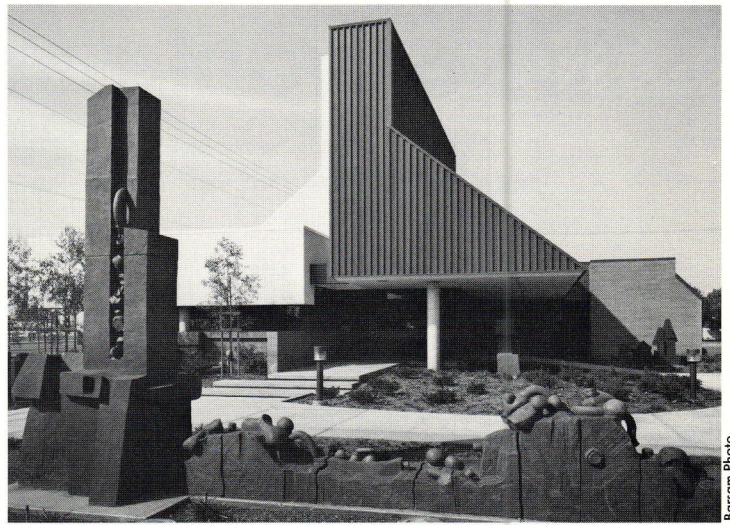
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The Downtown Club in the Printery Building, Allen Y. Lew & William E. Patnaude.



U.S. Government Employees Credit Union of Fresno County, Edwin S. Darden Associates.

San Joaquin Awards

Jurors for the San Joaquin Chapter Awards Program wrote, "The Jury's impression of Fresno as reflected in its architecture is one of a friendly community; of a nature which is derived from farm land; of a sense of individuality and open space and a non-ostentatious and strong work ethic. The special quality of life which exists here makes for a character

of architecture to be found in few communities in the nation." Awards of Excellence were presented to the U.S. Government Employees Credit Union of Fresno County, by Edwin S. Darden Associates and to The Downtown Club in the Printery Building, by Allen Y. Lew & William E. Patnaude. Kastner Intermediate School, by Edwin S. Darden Associates

and Fresno Art Center, by Allen Y. Lew & William E. Patnaude received Awards of Honor. Awards of Merit went to Quail Ridge Townhomes, by Thompson Architectural Group and Good Shepherd Lutheran Church, by L. Gene Zellmer Associates. Jurors for the program were George Hasslein, FAIA, George Bissell, FAIA and Ronald J. Rossi, AIA.

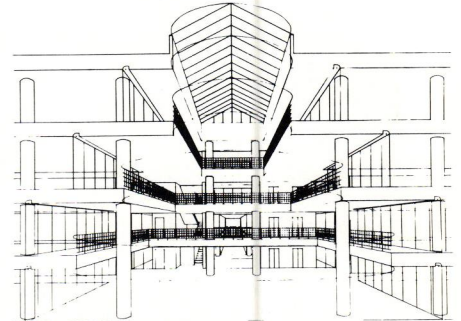


Deer Valley Resort, Park City, Utah; Esherick Homsey Dodge and Davis.

American Wood Council Awards

Three California firms were honored in the American Wood Council's second biennial nonresidential design program. Honor Award winners were Dutcher & Hanf, Architects of Berkeley for The College Preparatory School in Oakland (see page 28) and Esherick Homsey Dodge and Davis of San Francisco for Silver Lake and Snow Park Centers at Deer

Valley Resort in Park City, Utah. Berkus Group Architects of Santa Barbara received a Citation Award for the Descanso Education and Exhibition Complex in La Canada. Jurors were Don M. Hisaka, FAIA, chair, Thomas Hall Beeby, AIA, Peter Q. Bohlin, FAIA, Jaquelin Robertson, FAIA, William Turnbull, Jr., FAIA, and Tod Williams, AIA.



California DataMart, Tanner & VanDine Architects.

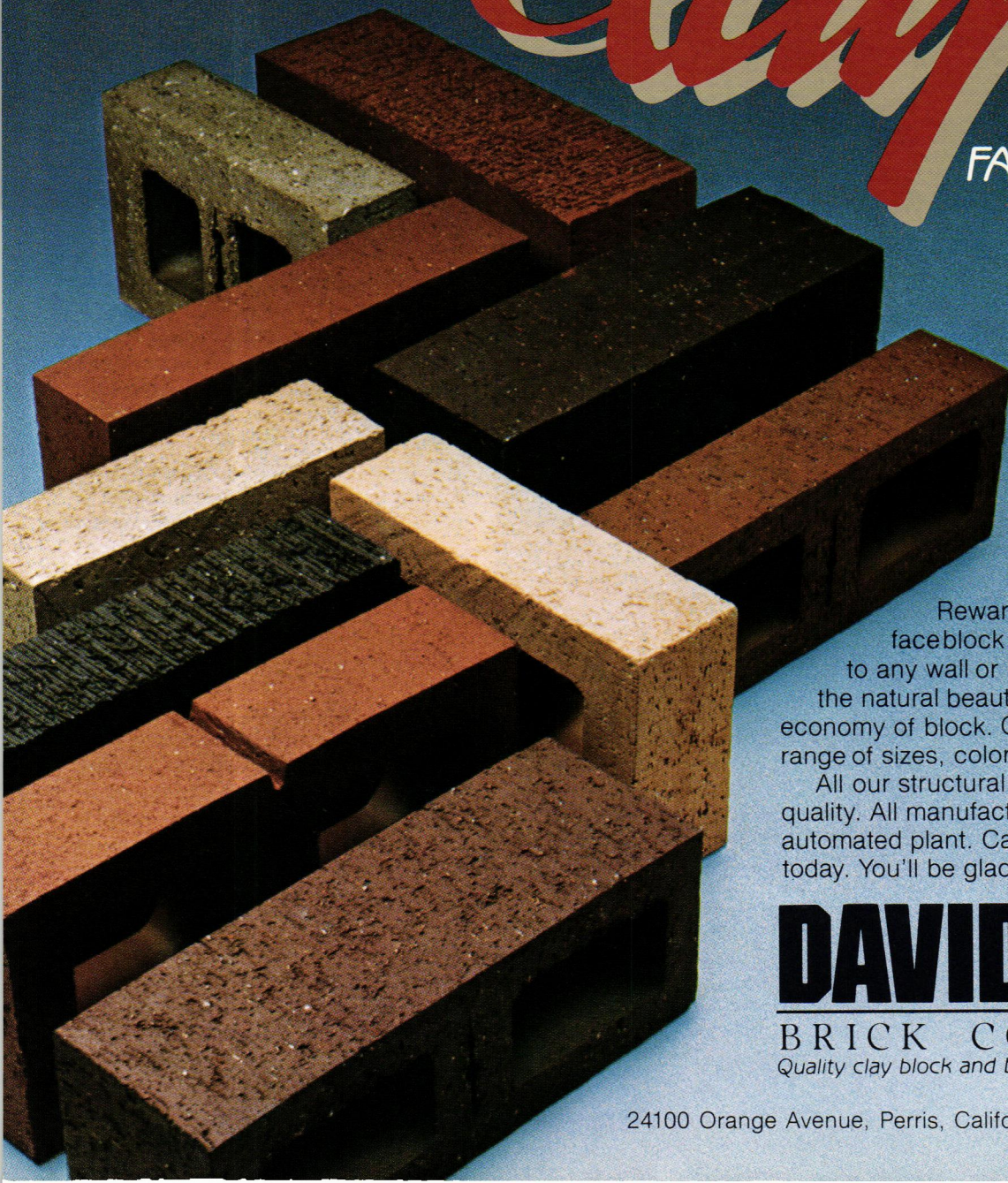
P/A Awards

The 31st Annual P/A Awards, sponsored by *Progressive Architecture*, recognized two California architectural firms. Architects Broome, Oringdolph, O'Toole, Rudolf & Associates of Portland, Oregon, ELS Design Group of Berkeley, and Barton Myers Associates of Toronto won an award for their joint project, the Portland Center for the Performing Arts (see *Architecture California*, May/June, 1983). Tanner & VanDine Architects of San Francisco received a citation for the design of the California DataMart in San Francisco.

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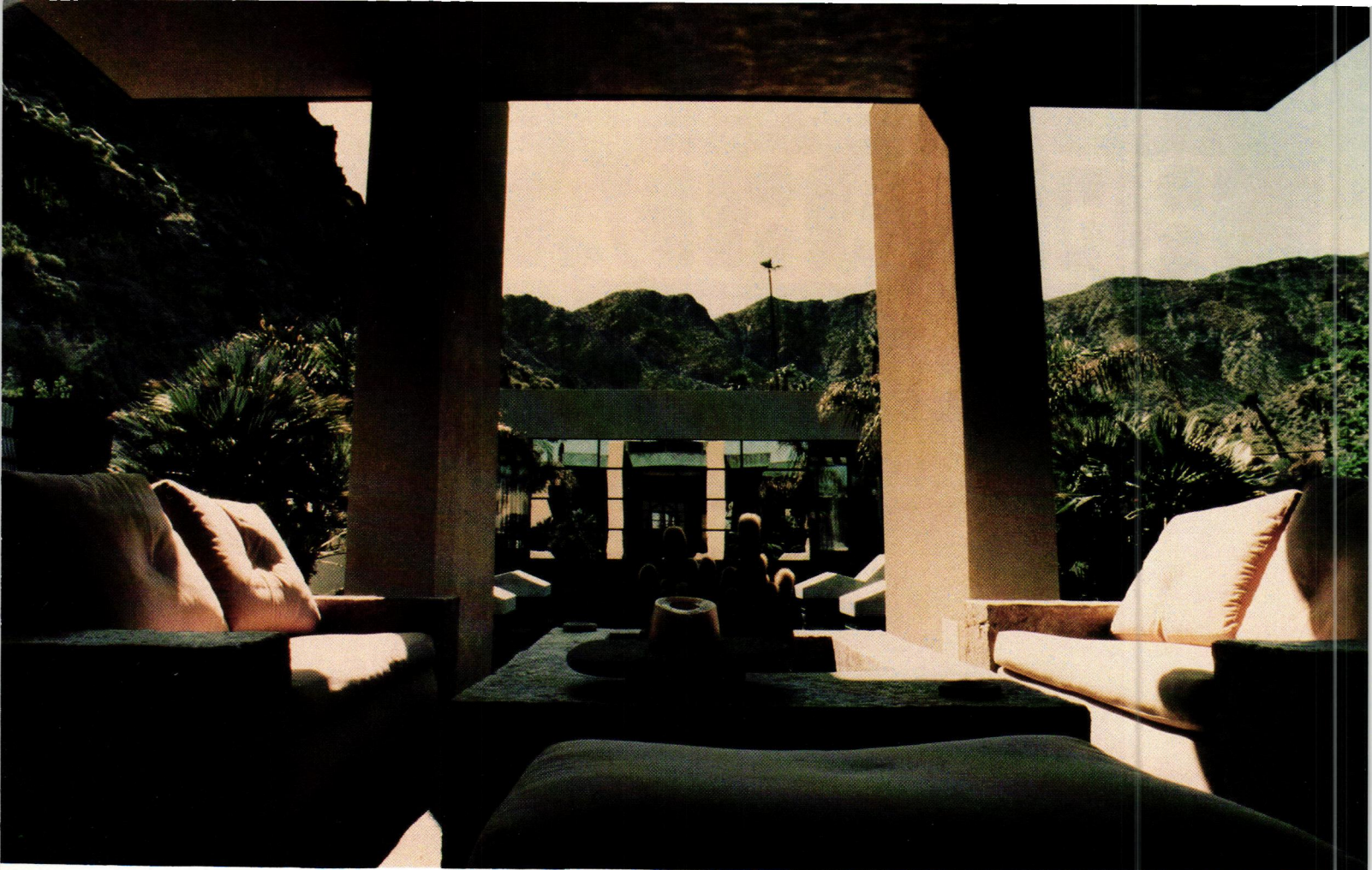
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Inland California Awards Program

The Steve Chase Residence in Rancho Mirage, designed by Holden and Johnson/Architects, received an Honor Award in the Inland California Chapter's biennial awards program. The program recognized work in two categories: completed projects and projects currently being designed and planned. Merit Awards for Completed Work were presented to the ISH and Carol McKnight Residence, by Holden and Johnson/Architects; ICU/CCU Intensive Care Addition to San Antonio Community Hospital, by HMC Architects, Inc.; and the Village Center

Building, by Guy G. Salts and Associates, Inc. A Citation for built work was awarded to Fire Station, City of Grand Terrace, by Wolff-Lang-Christopher/Architects. A Merit Award for Work in Progress went to the Nursing/Ancillary Addition and Cogeneration Power Plant at St. Luke Hospital, by HMC Architects, Inc. The Civic Center, City of Grand Terrace, by Wolff-Lang-Christopher/Architects received a Citation in the same category. Jury for the awards program were Ward Deems, FAIA, Martin Gelber, AIA and Donald Gibbs, FAIA.

CCAIA Firm Award

For the first time in its 40 year history, the California Council, The American Institute of Architects presented a Firm Award as part of its 1984 Honor Awards program. The Firm Award is given for outstanding contributions to the built environment and for active efforts to advance the profession of architecture. Two firms—Marquis Associates and MBT Associates, both of San Francisco—were selected to receive the honor.

Marquis Associates, established in 1953 by Robert B. Marquis, FAIA, emphasizes an atmosphere of design collaboration among its many principals, associates and staff. This cooperative effort has produced an impressive array of built works for which the firm has received over 50 design awards. Among its most notable projects are the Department of Justice, Division of Law Enforcement in Sacramento; the Cecil H. Green Library at Stanford University; the Marion Cerbatos and Tomasi office renovation in San Francisco; the Stern Hall Dormitory Addition for the University of California in Berkeley; and the Primate Discovery Center at the San Francisco Zoo.

Principals in the 35 person firm are Robert B. Marquis, FAIA; J. Peter Win-

kelstein, FAIA; Phyllis Martin-Vegue, ASID; James E. Caldwell, Jr., AIA; and Cathy Simon, AIA. The work of Marquis Associates will be exhibited at the AIA/San Francisco Chapter's Gallery, 790 Market Street, San Francisco, from February 13 to March 30, 1984.

MBT Associates, formerly McCue Boone Tomsick, is highly respected among colleagues, consultants, and clients for distinguished architecture. MBT Associates makes service to clients the firm's guiding principle, taking special pride in the fact that it has served some clients continuously throughout its 30 year history. Among the firm's most significant projects are the Santa Clara County Transit Facilities and IBM Santa Teresa Laboratory, both in San Jose; the Syntex Corporate Center in Palo Alto; the Berkeley Marina in Berkeley; and Oakes College at the University of California in Santa Cruz.

Principals in the firm are Frank Tomsick, FAIA; Gerald M. McCue, FAIA, Consulting Principal and Dean of the Graduate School of Design at Harvard University; Peter S. Hockaday, AIA; Alan R. Williams, AIA; Michael M. Hearn, AIA; and Rosalyn C. Koo, the firm's financial manager.

Mixed-Use Development Survey

A recent survey by the Urban Land Institute reported a 209 percent increase in mixed-use development (MXD) for the eight year period 1975-1983. With nearly 100 new projects either in the planning stages or under construction, the pace of this development is expected to continue throughout the 1980s.

The survey noted certain trends in MXDs. A lion's share (79 percent) of the projects are located in central cities, but developments in suburbs and smaller cities are on the rise. Nearly all of MXDs (97 percent) include both retail and office space, while almost two-thirds have hotels, and 42 percent offer residential living space. Less frequent uses for MXDs are recreation, theater, and/or convention center/arena facilities. A copy of *Mixed Use Development Projects in North America: Project Profiles* can be obtained for \$35 from the Urban Land Institute's Publications Orders Dept., 1090 Vermont Avenue, NW, Washington, DC 20005.

Foam Home

Ted Thoeny, a civil engineer from Seaside in Monterey County, is advancing an idea for affordable, energy-efficient, fire-resistant housing. His idea is to create a sealed cocoon by erecting a $\frac{3}{8}$ " plywood frame and spraying the inside walls and ceilings with polyurethane foam, apply-

SECRETS



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Monterey — Psssst, the password to the fifth annual Monterey Design Conference is "Secrets."

Architects, designers and cross-disciplinary professionals **come out of hiding** to discuss design methods March 30-April 1, 1984, at the Monterey Conference Center in Monterey. Ed Sohl, AIA, Conference Chair, said, "We'll see what our colleagues have **up their sleeves** during the lectures and discussion sessions. The Monterey Design Conference will be a laboratory for learning progressive design."

Individual West Coast architects, as well as a conspiracy of artists and critics, will shed light on the arts of set design, sculpture and fashion.

The Monterey Design Conference is sponsored by the California Council, The American Institute of Architects. Advance registration is required.

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Energy Costs Rise

A residential energy study published recently by the U.S. Department of Energy reports that the average householder paid \$1,022 in 1981 for energy. This represents a 10 percent increase over the previous year. Survey data from 1978 to 1981 show a 10 percent drop in fuel consumption, but that was not nearly enough to offset the increase in fuel prices, which caused residential energy costs to soar 53 percent in the same four year period. The West continues to have the lowest energy bills in the country. Broken down by region, the average household paid \$1,426 in the Northeast, \$1,042 in the North Central, \$922 in the South, and \$721 in the West.

Grant for Advanced Study

The Arnold W. Brunner Grant for \$10,000 will be awarded this summer to architects or those in related fields to fund advanced study in any special field of architectural investigation which will effectively contribute to the practice, teaching, or knowledge of the art and science of architecture. Applications are available March 15, 1984 from the New York Chapter of The American Institute of Architects, 457 Madison Avenue, New York, NY 10022. Phone: (212) 838-9670. Proposals must be submitted by April 25, 1984.

Competitions

Entry forms for a Design Competition for the New York Vietnam Veterans Memorial, a two phase competition, now are available. First prize is \$10,000; second prize, \$5,000; third prize \$2,500; and discretionary honorable mention prizes are \$1,000 each. Deadline for all submissions is April 14, 1984. Contact: New York Vietnam Veterans Memorial Commission, 110 Church Street, Suite 1700 A, New York, NY 10007. Phone: (212) 608-5800.

Builders, architects, planners, designers and developers are invited to enter the fourth annual Builder's Choice design and planning awards contest sponsored by *Builder*. Entry deadline is June 15, 1984. Contact Builder's Choice, National

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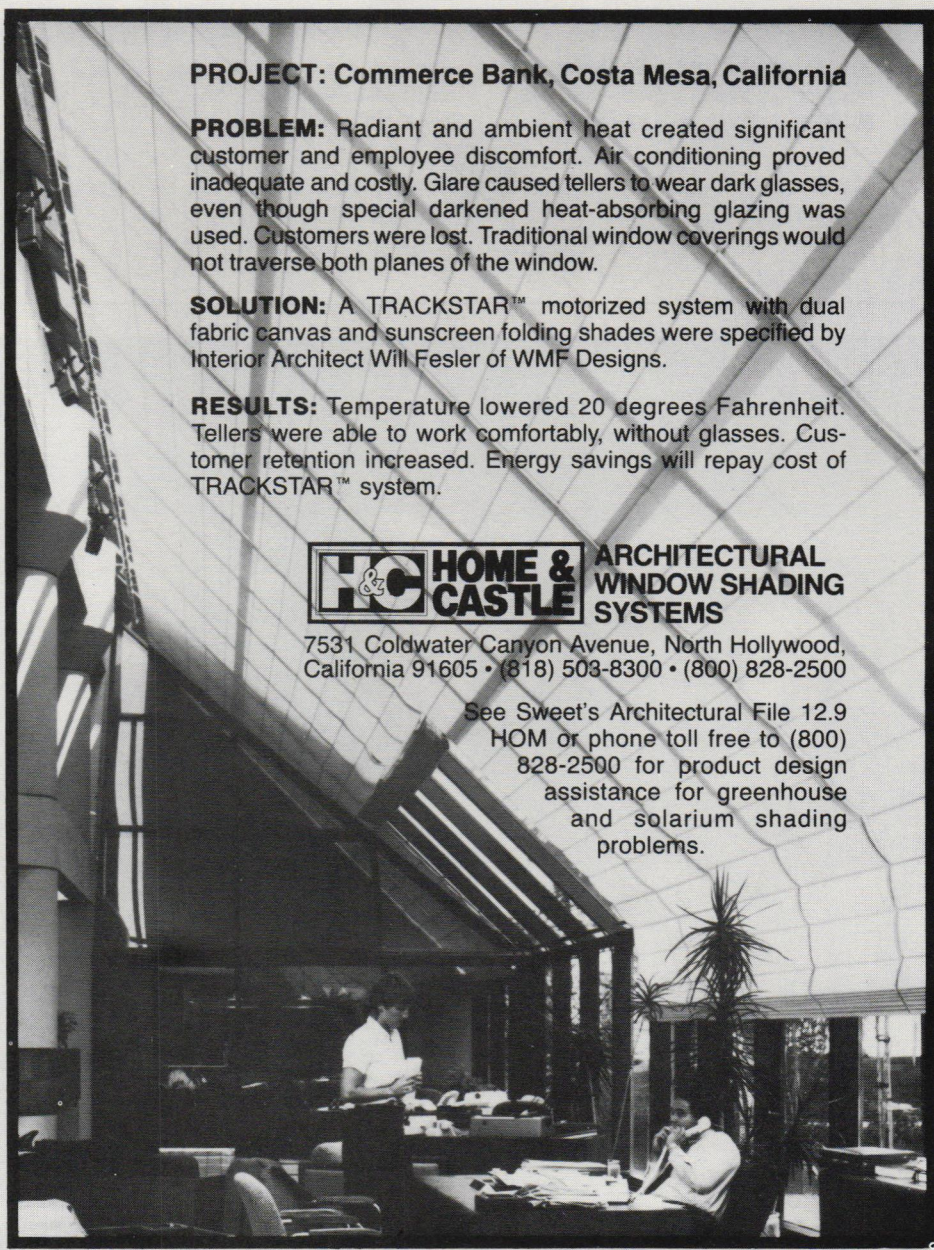
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Del Paso Boulevard Charrette

"Paint it up—Fix it up" could have been the theme for the Del Paso Boulevard Charrette, jointly sponsored by the Central Valley Chapter/The American Institute of Architects (CVC/AIA), the North Sacramento Chamber of Commerce, and the Sacramento Housing and Redevelopment Agency.

The charrette was called to propose inexpensive ideas for immediate revitalization of the area. Forty-five architects, landscape architects, planners, and artists volunteered their expertise in helping the community breathe new economic life back into the area.

According to Michael Chambers, AIA and Bruce Monighan, AIA, who coordinated the event for the CVC/AIA, the response from area merchants and residents was "overwhelming." For two days, the red and yellow T-shirts of the charrette were seen everywhere on Del Paso Boulevard. The local press, TV and radio were all on hand to cover the event.

"What we tried to do was to look at a building and make improvements that would respect the good architecture that is already there, finding key elements and emphasizing them. In the process of the weekend, we raised the design intelligence of the local community," Monighan said.

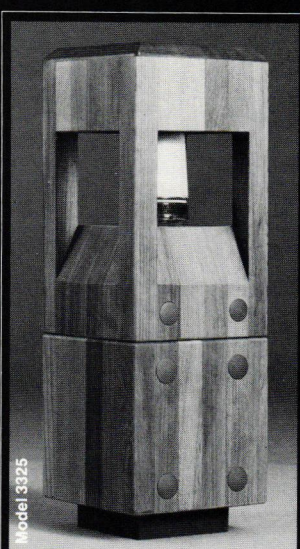
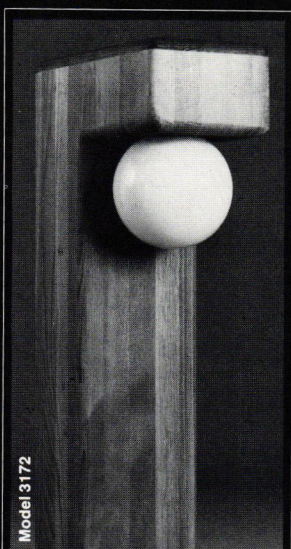
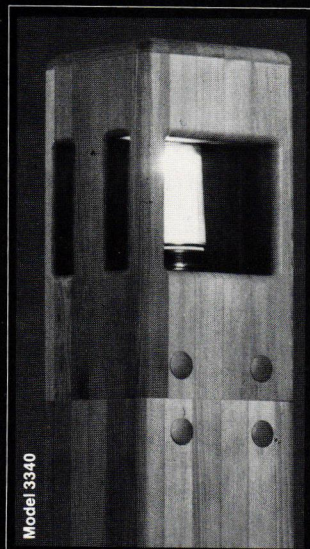
Among the more modest improvements suggested were a planned color scheme; new signage to provide an identifying, unifying logo for the area; additional trees and shrubs; and sandblasting of some buildings to expose the original tile and brick work. Better street lighting was considered a must to help deter crime and encourage pedestrian traffic during the evening.

Another charrette design team, lead by Barry Wasserman, FAIA, explored ideas for future development of the Boulevard. Included in their suggestions were new parking structures, mini-parks, a community theater, relocation of a proposed light rail station, and an area set aside for Saturday afternoon antique auctions.

Many business and property owners walked away from the charrette eager to begin the planned year-long revitalization program. The architects provided the community with its first opportunity to get together and express its collective intent to upgrade the neighborhood.

"It's good for our profession to do this," said Ted Walker, AIA, member of the charrette. "Normally architects work with wealthy people. We have a responsibility to give back to society, to depressed areas."

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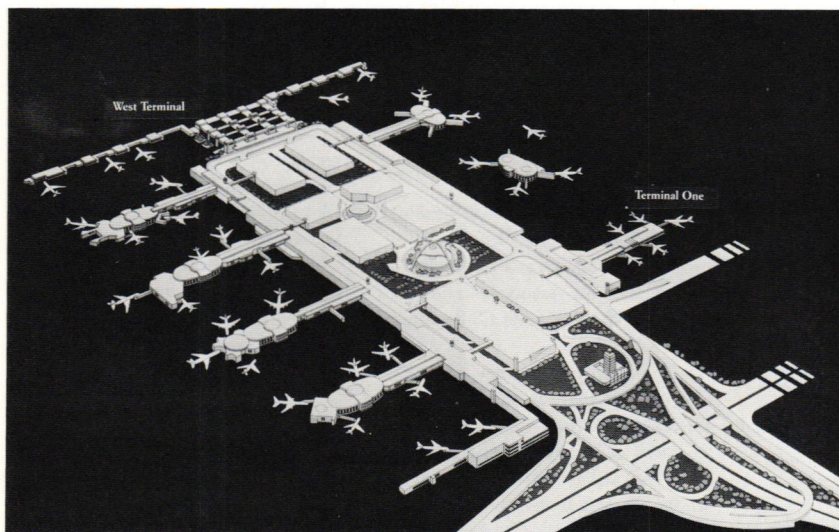


Architecture in Flight: LAX and SFO

by Don Shaw, AIA and Janice Fillip

As California's population and economy have grown, the state has become the kind of national focal point that the Eastern seaboard was at the beginning of this century. Consequently, California's international airports are the principal gateways to the United States for many immigrants, business travelers, diplomats, and tourists. At the same time, the San Francisco-Los Angeles air corridor has become the busiest on the planet.

According to aviation forecasters, no major reversals are expected in the next 20 (or even 50) years in the trends which have brought so many people to the Los Angeles and San Francisco Airports. In response to passenger demand for air service to "LAX" and "SFO," both airports have embarked upon ambitious terminal expansion and rehabilitation programs. Both airports are providing new facilities for international passengers, and are upgrading or expanding their capacity for serving domestic passengers as well. The number of people using SFO and LAX and the economic importance of the airports to their communities (not to mention their symbolic value as gateways to California) make these two places perhaps the most important sites for civic architecture in the state.



Los Angeles International Airport

When the \$700 million program of construction underway at LAX is completed in mid-1984, the airport passenger terminal space will be doubled, about 4,000 public parking spaces will be added to the central terminal area, major airfield improvements and a new air cargo handling complex will be completed, and the Central Utility Plant will be expanded. LAX will have the capacity to handle 40 million passengers annually.

At SFO, the terminal modernization and replacement program is scheduled for completion in 1987. The program began in 1979, when a joint venture of John Carl Warnecke & Associates and Dreyfuss & Blackford designed the 1.1 million square foot, \$67 million North Terminal for United Airlines. Current modernization projects for the Central and South Terminals, designed to increase SFO's capacity to 31 million passengers annually, are under the direction of Howard A. Friedman, AIA, master architect for SFO, in conjunction with Fong & Chan, associate master architects.

The 25-year-old Central Terminal, the first terminal built at SFO, was modernized to serve a new function as the airport's international facility. The modernization program called for an upgrade of the original building; a new boarding pier containing a 15,000 square foot retail concourse and 40,000 square feet of departure lounges, baggage handling and airline ramp facilities; a new 156-foot high FAA air traffic control tower; and new connectors to the existing North and South Terminals. Architect for the \$100 million project was Gensler and Associates Architects. The project was completed in 1983, on schedule and within budget, according to Louis Turpin, SFO's Director of Airports.

Projects at LAX include:

- a \$60 million second level deck for World Way, increasing roadway capacity from 4,100 to 6,300 vehicles per hour. Architects: a joint venture of DeLeuw, Cather and Company with The Ralph M. Parsons Company; Gin Wong and Associates for the roadway/terminal building interface.
- West Terminal, to handle the up to 7 million international passengers annually. Architects: a joint venture of Pereira/Dworsky/Sinclair/Williams.
- Terminal One, to handle over 6 million domestic passengers annually. Architects: Welton Becket Associates; with Margo Hebard-Heymann, AIA, associate architect; Benito A. Sinclair & Associates, civil engineers; and Peat Marwick, Mitchell & Co., consultants for technical planning.
- remodeling and expansion of existing airline facilities.
- three new parking structures, a \$36 million project to increase public parking spaces to nearly 27,000. Architects: Kennard Design Group.

Construction manager for all projects: Bechtel/DMJM, a joint venture of Bechtel Civil and Minerals, Inc. with Daniel, Mann, Johnson and Mendenhall. Supervising architects: Gin Wong Associates.



Joshua Freiwald

Al Dreyfuss, FAIA: "An airport is not a building. It's what a passenger has to put up with to get from wheels to a device that flies."

Elements of Airport Design

Expansion of facilities at both SFO and LAX is planned within the confines of the existing infrastructure, airfield layout and terminal building complex, rather than through major relocation or drastic reconfiguration. The work underway at LAX and SFO does not represent the current trend toward segregating the landside and airside functions of an airport and linking the two with a ride system. This approach, used at Dallas and Tampa and in variation at Orlando and Atlanta, is perhaps best suited to completely new airport developments. The additions to LAX and SFO represent the emerging tendency of airport facilities everywhere to make optimum use of the existing infrastructure, and reflect the trend toward centralized airline activity ("hubbing") which has occurred since airline deregulation.

What has taken place at these two airports represents a "post-modern" approach to airport design, not in the sense that Charles Jencks coined the phrase, but in the sense that starting from scratch (the 1950s approach) is no longer economical in this era of limits. Air transport has matured, and the need to totally discard existing facilities because of radical changes in aircraft equipment is not as pressing as it was at the dawn of the jet age or when widebody aircraft were introduced. Only where extremely constrained airspace problems or overwhelming environmental issues exist can a case be made today for the construction of an entirely new airfield. The decision at SFO and LAX to build within the context of existing, functioning airports makes the architects' job much more challenging, if somewhat less glamorous.

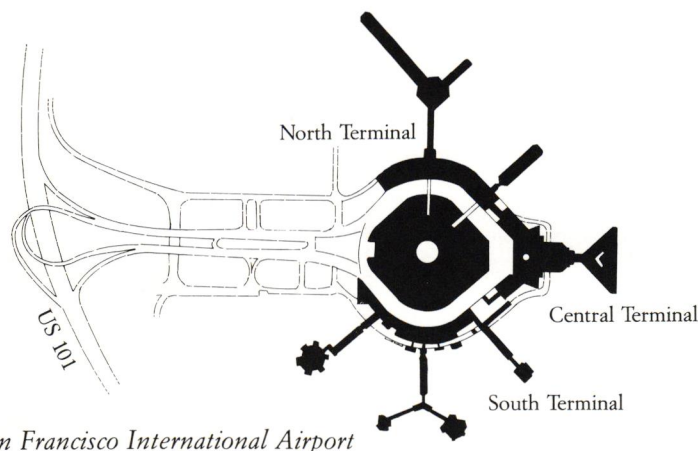
To appreciate the work being done at Los Angeles and San Francisco requires some background in the general principles of airport design. To begin with, the area available for a terminal is determined largely by airfield layout. San Francisco and Los

Angeles represent different types of runway configurations: LAX has dual parallel runways with staggered thresholds, while SFO has dual intersecting runways, due to its crosswind problems. Each runway configuration places different constraints on the area available for terminal building development. SFO is limited because the runway intersections prevent buildings from expanding in one direction and Highway 101 precludes expansion in the other. On the other hand, LAX's parallel configuration could allow a midfield terminal to expand in either direction, if tunnels were provided beneath the crossover taxiways. In practice, however, this would require the relocation of airline maintenance facilities at LAX. The net result is that physical expansion of terminals at both airports is constrained.

Another consideration in airport design is the generic type of terminal layout. Airport terminals generally fall into certain categories. The most common are the linear (or frontal gate) terminal, the pier finger terminal (either parallel- or cross-taxiway configurations), the satellite terminal, and the ride-system terminal. There are, of course, many combinations of and variations on these themes. Also, terminal activities may be centralized in one building or dispersed among several unit terminals connected by a common roadway.

The roadway itself is a major determinant of building design. All traffic may be on a single level, as is common at small facilities, or it may be separated into enplaning traffic on the upper roadway and deplaning traffic on the lower roadway, which is the most common arrangement for large facilities.

Although they started at different points, both LAX and SFO are evolving into "connected unit terminals," with pier fingers for aircraft gates and two-level roadways. SFO was built as a pier finger central terminal with a two-level roadway. LAX, in its earliest conception, was planned to consist of separate satellite-type unit terminals around a two-level roadway, but the



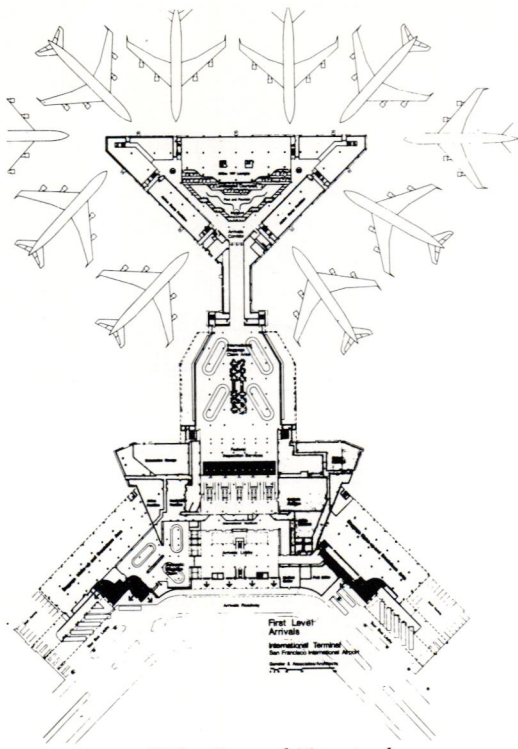
San Francisco International Airport

At SFO the \$148.6 million facelift for the South Terminal includes the following elements:

- renovation of the South Terminal Building by Marquis/Wong & Brocchini/Associates, a joint venture of Marquis Associates and Worley K. Wong, Ronald G. Brocchini Associates;
- construction of a new West Entrance Building to the South Terminal by Group-4 Architecture, Research & Planning, Inc.;
- renovation of three boarding areas—Area A by Anshen & Allen, Area B by Esherick Homsey Dodge & Davis/Robert B. Wong, and Area

C by Gensler and Associates Architects;

- construction of a new Boarding Area B concessions area by ED-2 Architects and Planners; and
- construction by Gerson/Overstreet of new tunnels to connect the existing parking structure to Boarding Areas A and C.



SFO: Central Terminal

second level only recently was realized. "We're converting from a satellite to a finger system," said Bob Schoenfeld, AIA, deputy general manager for LAX. "We're only getting about 10 percent more gates, but we're getting widebody gates. I'm still convinced that, in theory, the satellite system is best."

Within constraints imposed by the existing runway configurations and terminal area layouts, the architects involved in the expansion and remodeling of these facilities must find ways to accommodate the various components of a modern airport. On the landside these components are parking, roadways, curbside, ticket lobby, ticket counters, baggage claim, baggage handling facilities, and circulation. On the airside, the major components are runways, taxiways, aircraft parking aprons, operations facilities, departure lounges, and concourse circulation. Security checkpoints and concessions may be either airside or landside.

Fitting all of these elements, each with its own requirements for space and functional relationships, into a limited site is no easy task. The South Terminal at SFO offers an example of this problem. "We were absolutely squeezed between the parking garage and the airside circulation," said Jim Caldwell, AIA.

Marquis/Wong & Brocchini proposed a new airside circulation pattern to ease the strain, but it was stymied by lack of budget and space. At LAX, a taxiway had to be relocated to provide a large enough site for the West Terminal. "No way could we move the taxiway any further," said Bill Schoenfeld. "The main problem we have here is space."

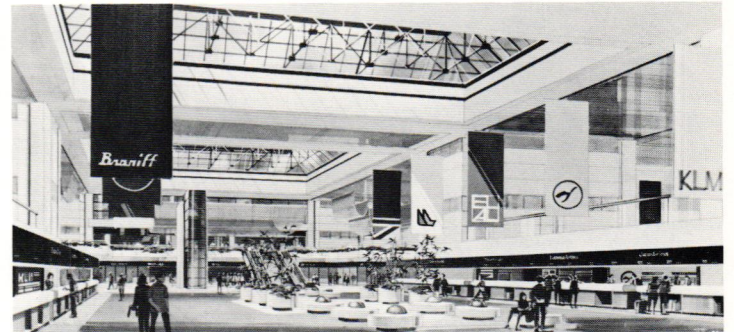
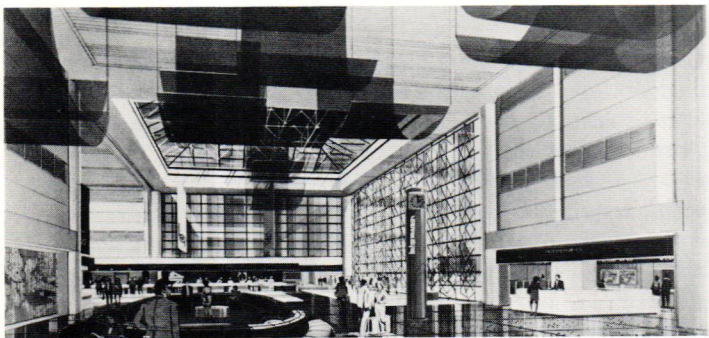
The building envelope, as defined by existing roadways and runways, is relatively set, whereas the space requirements are variable, depending on passenger volume and aircraft activity. To arrange the elements so that they will function and still fit within the envelope provided is, in itself, a difficult task. To further provide outstanding architectural design may be asking the impossible. This may be why airports rank with hospitals and prisons in the public mind as lacking beautiful, humane architectural design.

Unique Design Issues

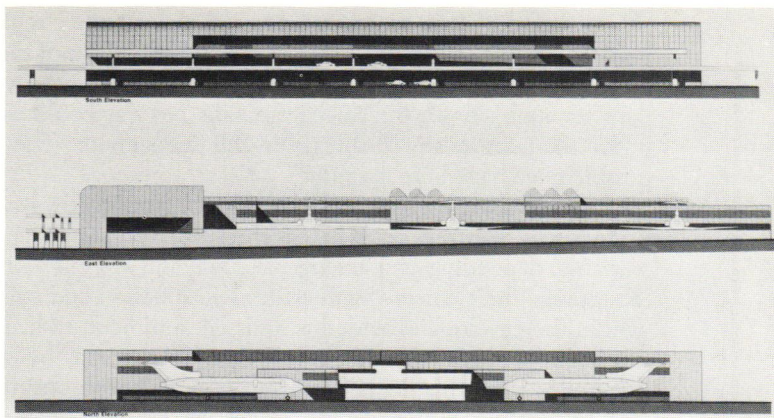
Several issues are unique to the design of airports and distinguish them from other building types. These issues may not be obvious to architects before they design their first airport terminal. (And unfortunately, it is rare that a firm gets the chance to do more than one terminal.)

The most important issue is the direct impact airport terminals have on aviation safety. Many air carrier delays are caused by deficiencies in the terminal area, either in terms of aircraft maneuvering or passenger transfer times. If a plane cannot land because there is no gate available, it wastes fuel in a holding pattern and prolongs its exposure to safety hazards in congested airspace. For this reason, much effort recently has been devoted to developing a computer simulation model for passenger flow within the terminal building. If the terminal simulation for a projected airline schedule reveals that passenger congestion at security check points would delay departing flights, steps may be taken to add additional facilities before traffic increases. The "TERMISM" computer program was used in sizing key passenger handling facilities for Terminal One at LAX.

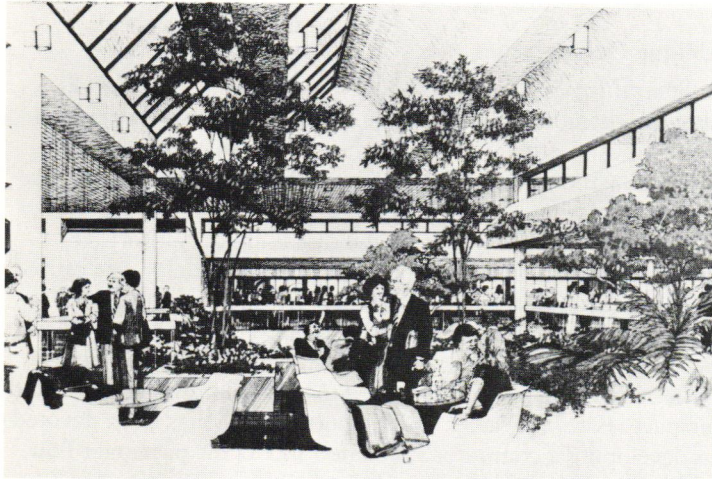
Apron layout is a second issue which distinguishes terminal design from other architectural problems. The economic value associated with aircraft parking space at a major hub is such that the world's most elegant terminal design would be discarded by the airlines without a second thought in favor of an aesthetic disaster with one more gate. Apron layout is the most critical part of airport planning from a functional viewpoint. Architects, before becoming involved in airport terminal design, tend to focus on the spatial qualities of the waiting lobby. After receiving their first airport commission, they may be disconcerted to learn



LAX: West Terminal

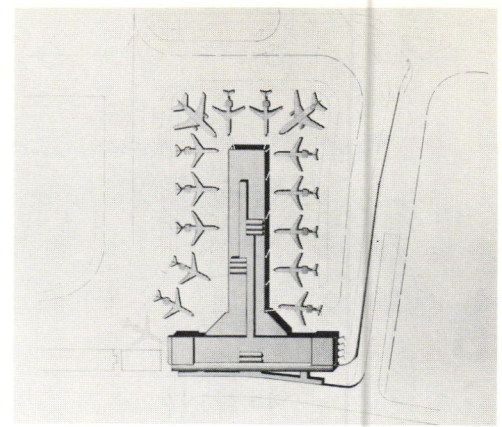


LAX: Terminal One



that no one involved in airline or airport management really wants a waiting lobby; their ideal airport would magically convey passengers from their cars to the aircraft with no waiting whatsoever. The terminal building functions as a pedestrian highway connecting a parking lot for cars with a parking lot for planes.

A third issue is the question of facility sizing, which is dependent on forecasts of aviation demand. Aviation planners forecast air traffic and derive facility requirements based on these forecasts which are integrated into the master plan or terminal development plan. The architect then responds to these requirements and designs a building to fit them. These forecasts may fluctuate during the course of master planning and preliminary design, forcing program space requirements to be revised. While



aviation forecasting and even terminal building sizing require specialized experience, the architects are expected to respond to these changes, and are sometimes held responsible for the future inadequacy of a facility they did not size. Wally Haas, AIA points out that such problems have been particularly acute because deregulation of the airline industry occurred when construction of new facilities at LAX already was underway. Because carriers may now move in and out of a market at will rather than being committed to servicing an airport for a contracted length of time, expansion may be planned to accommodate a carrier which suddenly decides to fly elsewhere or goes out of business, as in the case of Golden West.

The Design Process

The terminal architects at LAX and SFO have had to balance these diverse demands within the context of the airport planning process. This process, although it differs from airport to airport, is somewhat more complex than planning for other types of buildings because it involves more people and more steps. The people involved are the airport management (including the airport staff, the Airport Commission, and the municipal government), the various consultants, and the airlines. The steps involved in airport planning generally fit into three categories: the master plan, the terminal development plan, and continual updates of the two.

At both airports the client—the Airport Commission acting through the airport staff—was extremely involved in determining the program for the expansion and modernization projects. Within those programs the architects were responsible for meeting the needs of two diverse users, one human and the other mechanical. “Most firms design the building as architects, but they don’t design it as the airline uses it,” said Wally Haas. “The mechanical user is not flexible. Most architects don’t understand that the craft is the controlling factor in the shape of the building.”

LAX and SFO both had master plans when the present terminal work was begun. The current work at LAX actually completes projects scheduled in the master plan written by William L. Pereira Associates in 1957. Completion of the master plan was stalled for 15 years when Environmental Impact Reports (EIR) became required by law. “Welton Becket had the contract for Terminal One 15 years ago and had to wait until the EIR was finished,” said Elizabeth Kurth Armstrong, president of the Los Angeles Board of Airport Commissioners. “The project was needed 10 years ago, so we’re 10 years behind in getting it built.”

SFO’s master plan was drawn by the John Carl Warnecke/Dreyfuss & Blackford joint venture in 1968. The current work at San Francisco is based on a version of the original plan modified by SFO’s Airport Staff.

	International		Domestic		
	SFO	LAX	LAX	SFO	SFO
	Central	West Term.	Term. 1	So. Term.	No. Term.
Gates	10 wb	11 wb	7 nb 7 wb 14	20 nb 19 wb 39	8 nb 22 wb 30
Building Area	375,000 sq.’ new 145,000 sq.’ rem. 520,000 sq.’	963,000 sq.’	360,000 sq.’	300,000 sq.’ new 550,000 sq.’ rem. 850,000 sq.’	1,121,000 sq.’
Annual Passenger Volume (in millions)	6	6.8	6+	12	13
Construction Cost (\$ millions)	\$100 (1983 dollars)	\$123	\$46.5	\$148.6	\$67 (1979 dollars)
Cost per Gate (\$ millions)	\$10 (1983 dollars)	\$11.2	\$3.3	\$3.8	\$2.2 (1979 dollars)
Cost per Square Foot	\$192 (1983 dollars)	\$128	\$129	\$174	\$60 (1979 dollars)

wb = wide body aircraft
nb = narrow body aircraft

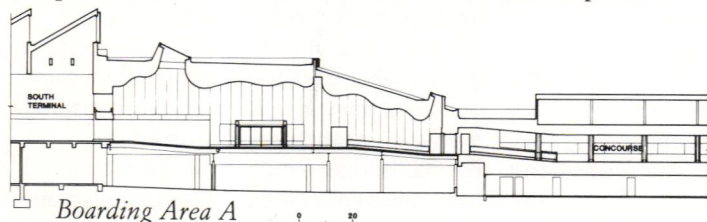
The International Terminals

The newly-opened Central Terminal at SFO and the West Terminal nearing completion at LAX both occupy dominate positions along the central axis of the airports' roadways. Each building bears the imprint of airside constraints. The Central Terminal's apron area is squeezed by the intersection of SFO's runways, while the West Terminal is so close to the major cross-over taxiway between runways at LAX that the apron area had to be placed on the landside of the concourse. Giant 747s slide past the West Terminal's opposite face with breathtaking proximity. As a result of these constraints, SFO's Central Terminal was forced to have a very compact airside configuration, while the West Terminal at LAX had to have a long, linear layout.

Gensler and Associates used the constraints to advantage at SFO's Central Terminal by designing a triangular airside that organizes aircraft parking and common departure lounges along the perimeter. An enclosed courtyard with landscaped fountain is situated at the center of the triangle. From the viewpoint of arriving passengers, the effect is spectacular. "We wanted to create an atmosphere for the traveling public that's more human, warmer, softer," said project manager Gordon Johnson, AIA. "Instead of a purely functional aspect, we wanted to humanize it."

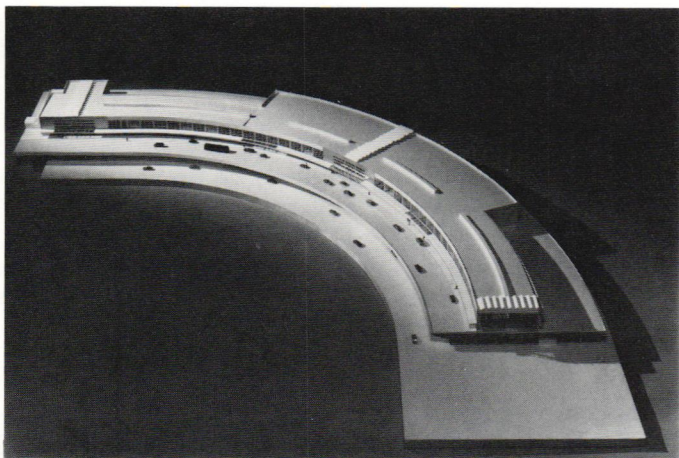
A stroll through the Central Terminal in the late afternoon is a special experience. The entire interior seems to glow with an inner light. The overall ambience would be described by most architects as "post-modern."

The concept of airport-as-shopping-mall is well-realized at the Central Terminal. The shops were intentionally located in the direct path of all passengers heading to their gates to boost airport revenue from the concessions, according to Jason Yuen, AIA, head of the Bureau of Planning and Construction at SFO. The plush retail concourse overlooks the Federal Inspection



Modernization of the South Terminal Building at SFO is a multiphased effort involving seven architectural firms. Construction is complicated by the fact that all airlines must continue to operate in the facilities during renovation. All work must take place within the existing building shell. "No matter what you do, you're still left with old bones," said Howard Friedman.

"The problems we encounter are due to having to make a wreck of a building serviceable for 20 more years," said Peter Dodge, FAIA. His firm, Esherick Homsey Dodge and Davis, is grappling with the problem of stopping leaks sprung as the terminal and boarding areas sink into the San Francisco Bay mud at different rates. Tremendous slip joints were designed to bridge the gaps between the terminal and Boarding Area A caused by years of racking. If the solution succeeds in accommodating the continuing differential of elevation between the two structures, the piles of sawdust and "Caution—Wet Floor" signs that dot the South Terminal during inclement weather may be permanently retired.



SFO: South Terminal

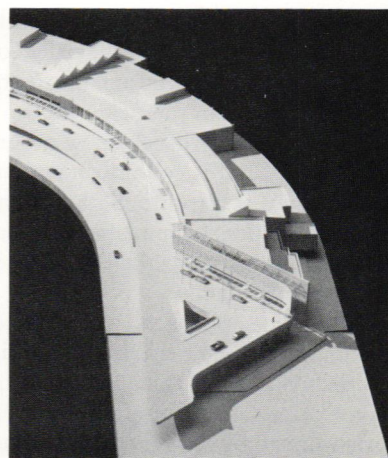
Service baggage claim area, which is glazed to prevent interactions with passengers not yet cleared through customs. It is astonishing that the architects were able to get the F.I.S. to go along with the design, since federal design guidelines prohibit views from the waiting area into the customs area.

If San Francisco's Central Terminal provides a warm welcome to the arriving passenger, the new West Terminal at LAX will provide a grand *bon voyage*. "The West Terminal, because of its size, will have a dominant position in the airport," said Daniel Dworsky, FAIA. "It's on axis with other landmark buildings, and it's higher than the other buildings in the loop. Because of the site, we were able to set back about 30 feet from the second level roadway to create a landscaped buffer zone. The functional relationships between the roadway and the building set the tone."

The departure level ticket lobby is monumental, with enough space for three simultaneous football games. The facade of the West Terminal is a handsome, restrained example of what might be termed a "late modern" vernacular, but the five-story entry lobby promises to be a real *tour de force*, particularly if the interior finishes are as good as the raw space. The outlook is promising. "We feel that the structure, the architectural forms, have to be respected," Dworsky said. "Whatever we insert into the interior must be harmonious and integrated into the total architectural concept."

The West Terminal's exterior complements the rectilinear layout of LAX terminal complex in form and massing. Its neutral color is consistent with other buildings, such as Terminal One and the remodeled facade of United Airlines by Leo Daly Associates. The Central Terminal at SFO, on the other hand, is a point of departure, both in hue and shape, from the curvilinear North Terminal and the radically symmetric parking garage.

Separated from the white North Terminal by blue metal connectors, the warm beige exterior of the Central Terminal echoes the flat rectilinear form of the original central terminal. The architects appear to have made a conscious decision not to reference the surrounding buildings, but rather to assert strongly the unit terminal concept and introduce variety into the terminal area. This approach reflects the philosophy of Howard Friedman, AIA, special consultant to San Francisco International, who set the design criteria and handled architect selection for the Central and South Terminals. "My feeling was to push for diversity," Friedman said. "I'm fighting the thing you see at most airports; if you don't know their names, they all look the same. We've tried to make the airport interesting. The diversity creates a better design that is more human and indigenous to San Francisco."



West Entrance, South Terminal

The Domestic Terminals

The South Terminal forms the entry to SFO's terminal complex, as does the recently-completed Terminal One at LAX. Both buildings actually may be as far into the airport as many passengers ever get, since both principally will serve the domestic, commuter traveler. As many as six million people a year shuttle between Terminal One at LAX and the South Terminal at SFO. Conceptually, these terminals might be viewed as two ends of the same building, connected by an airplane.

Other than their similar functions and locations, there are more contrasts than coincidences between the two projects. The South Terminal at SFO involves a great deal of modernizing (although 300,000 square feet of the 850,000 square foot total is new construction), whereas Terminal One is an entirely new facility. Terminal One is also smaller, both in square footage and the number of gates. Both facilities represent innovative approaches to airport planning, technically in one case, and architecturally in the other.

Welton Becket & Associates has risen to the opportunity presented by a new (if rather tight) site at Terminal One to design a terminal which is technically innovative with respect to apron layout and baggage handling. Welton Becket and their team have provided an unusually flexible building which allows for different apron layouts by virtue of the flat airside facade, and provides modular loading bridges and exterior stairs which could be readily relocated along the face of the building to accommodate different aircraft types. The building also has a sophisticated common baggage handling system to serve all the airlines using the facility. These innovations will allow an effective gate management program and should add significantly to the useful life of the structure by eliminating the need to radically alter it to meet fluctuations in the airline industry.

Terminal One does not provide a strong statement of entry to LAX, but it does set an example for the kind of facade which could be extended around the new upper level roadway without visual clutter. The parking structure and its overhead connecting bridge "took the emphasis off the building," according to Warren Dahl, AIA, vice president and senior project designer for Welton Becket. "In many ways it turned into an interiors treatment."

The *forte* of Terminal One is probably the concourse. The 10,000 square feet of skylights, two 2500 square foot gardens, and a muted color scheme provide a restful waiting area for weary commuters. "The problem is that LAX is very heavily used," Dahl said. "I had to fight to get the gardens in. The gardens break up the space psychologically so that the walk—375 feet from security to the end gate—would psychologically seem like a walk from one garden to another." Since the concourse is where most passengers, especially commuters, spend their time, it is appropriate that design effort should extend there, and not just be lavished on the ticket lobby.

If Terminal One breaks new ground technically, the South Terminal at SFO is certainly a departure in architectural project management at airports. Rather than assign all the work to one firm, the Airport Commission has parcelled out the work to a variety of firms under the direction of supervising architect Howard Friedman.

The unique approach was intended to spread the work around to a mixture of new, established and minority firms, according to Friedman. SFO's chief project manager for the South Terminal, John Costas said, "The pioneering effort was done purposely to enrich the architectural stream of the building. There are always areas of interface and conflict, but we've been able to bridge

that. It's amazing that we've been able to coordinate as much as we have. The intent is to look at the terminal as one building which makes a unifying statement, but each piece has its own architectural character. The average passenger will have a short course in architecture by the time he gets to the airplane."

In plan, the South Terminal appears to offer an architectural solution to the formal problem posed by the disparate styles of the North and Central Terminals. The reworked facade of the South Terminal by Marquis/Wong & Brocchini has both vertical lines and horizontal curvilinear ones. The new West Entrance to the South Terminal, designed by Robin Chan of Group-4, will provide a vertical element at the entry to the airport complex which foreshadows the Central Terminal's control tower. Perhaps after driving past a renovated South Terminal, the viewer will be better prepared for the differences in style, color, and form which characterize the juxtaposition of the Central and North Terminals as presently configured.

The Great American Airport

On the whole, the architecture at SFO and LAX represents the good efforts of some of California's best architectural firms. Each firm has grappled with numerous physical and economic constraints, extremely challenging technical problems, and highly-charged political issues during the course of design. The results, with regard to accepted standards of airport design, are extremely competent. The respective airport managers have adopted a clearheaded approach to development, wisely avoiding the temptation to pursue the latest fads in airport planning. Rather than seeking imported solutions, the airport managers and their architects have managed to solve the unique problems at hand. The results, in almost all respects, successfully address the real needs of the passengers and airlines alike.

The new architecture at SFO and LAX stands up well compared to efforts at other airports across the country. But the airport terminal, despite being a semi-industrial building type, could and should aspire to higher design standards. How can the airport terminal rise above the status it shares with hospitals and prisons as the stepchildren of the design profession?

One suggestion is that the budget for professional fees should be structured to allow for sufficient research, programming and technical planning prior to the start of physical design. Many architects unfamiliar with the building type are probably unrealistic about the learning curve required and, as a result, find themselves squeezed between the demands of preliminary technical planning and working drawings. By budgeting for adequate consulting services or by insisting that the client provide a terminal development plan which is more detailed than the typical airport master plan, the architect could devote more effort to the creation of a beautiful and humane architectural design.

Perhaps the great airport terminal, like the great American novel, has yet to be created. The technology of air transport has reached maturity only in the last decade. As a building type, the airport terminal is still evolving. The development at SFO and LAX are steps in this evolution. Perhaps around the turn of the century another surge of construction will integrate the diverse architecture at these airports, and produce a final statement in airport architecture.

Don Shaw, AIA has an architectural practice in San Francisco, and is a consultant on aviation planning. Janice Fillip is editor of Architecture California.

The Metro: Whistle-Stop Development in Los Angeles

by Kelly Collins

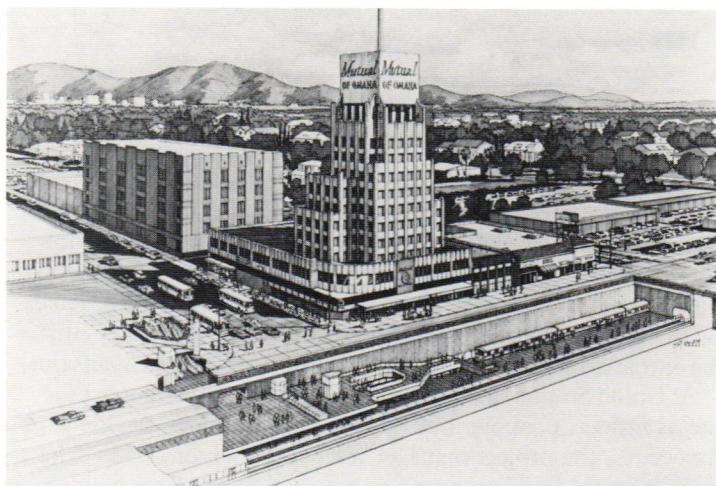
For years, Los Angeles has solved its transportation problems by pouring more concrete, making bow ribbons of freeway interchanges that are far too complicated for the *laissez-faire* mind. But now, the City is taking a new approach, embarking on construction of a \$3.3 billion rapid transit system that will provide commuters with an alternative to the slow, agonizing crawl of "rush" hour traffic. The 18 mile trip between North Hollywood and downtown LA will take only 35 minutes on the new high speed rail system. The Metro will be the "starter" line for a region-wide transit grid that will change the urban fabric of Los Angeles and provide a catalyst for future development.

The prospect for total saturation of Los Angeles freeways and surface streets could become a reality by the end of this century according to an Environmental Impact Statement (EIS) released last December by Southern California Rapid Transit District (SCRTD) and the federal Urban Mass Transportation Administration. By the year 2000, daily travel on LA freeways will increase an estimated 24 percent, and the number of severely congested key intersections on arterial streets will triple. More buses will not solve the problem, since buses must use the same clogged streets as automobiles. The answer appears to be a transit system that has its own right-of-way which, of course, the Metro does.

But Metro planners not only view the subway system as a panacea for the ills of freeway congestion, they also tout the importance of the new Metro's role in revitalizing LA's regional core. Existing City and County plans specifically mention rapid transit as a tool to shape future growth. In 1970, the County of Los Angeles adopted the "Urban Form Policy" which calls for a series of regional centers connected by a rapid transit system. Four years later, the City of Los Angeles adopted its version, the "Centers Concept," as a 50 year master plan for urban development. The Centers Concept proposes 30 or more high density, multi-use centers, linked by subway, to service their surrounding communities. Financing a rapid transit system won voter approval in 1980 when a county-wide referendum was passed self-imposing a ½ percent sales tax specifically to fund SCRTD's mass transit efforts.

The 18.6 mile Metro is the beginning of a proposed 150 mile rapid rail network that would link San Pedro/Long Beach with Van Nuys and Glendale/Pasadena with Santa Monica. The route for the starter line follows the Centers Concept through the regional core, serving the Central Business District, Westlake District, the Wilshire Corridor, Hollywood and North Hollywood—an area that accounts for 60 percent of SCRTD's total ridership.

Last year, Congress passed an appropriations bill earmarking \$117.2 million of the federal gas tax fund to cover the first year of Metro construction, which is scheduled to begin in June. Completion of the estimated \$3.3 billion project is not expected until 1990. Contracts for advance station and tunnel design have



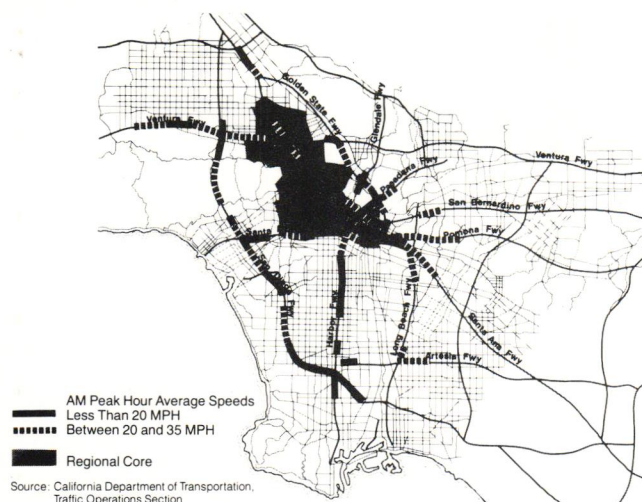
Wilshire/LaBrea Station, Harry Weese & Associates

been awarded, but actual work will not commence until Congress issues a "letter of intent," expected this month. Federal funding, critical if the project is to go ahead, will cover 62 percent of the projected costs. The Metro will not be attempted with local funds alone.

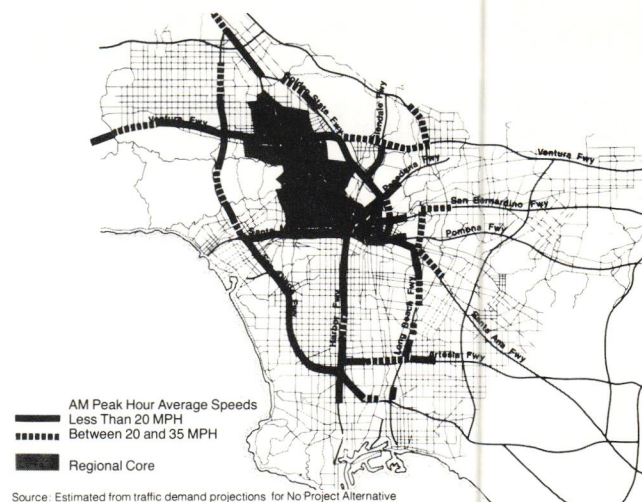
Congress is expected to fund the project. What is in real doubt is which of the three options provided in the EIS it will choose. The three options are: all 18.6 miles underground; 16 miles underground with 2.6 miles of aerial trackway in the San Fernando Valley; and an 8.8 mile "Minimum Operable" subway option from Fairfax/Beverly Station to downtown.

Writing the EIS entailed a three year process of study and debate. Station locations were the focus of much attention during public hearings. The hearings resulted in some modifications being made to the original plan. One change was moving the Central Business District station alignment one block, from Broadway to Hill Street, to increase the number of potential patrons served. Five routes were proposed through the Hollywood District. A community advisory committee finally settled on two stops: Sunset Boulevard at La Brea and Hollywood Boulevard at Cahuenga. The proposed stop in front of Hancock Park and the world-famous La Brea tar pits generated an outcry to save this valuable paleontological area. As a result, the station was moved to a less sensitive area, the current parking lot behind the May Company at Wilshire and Fairfax.

In selecting the Metro stops, planners also had to consider the impact of construction on historically significant buildings. Dr. Knox Mellon, State Historic Preservation Officer, cited three buildings—Union Station, Title Guarantee Building, and



Freeway Congestion, 1981



Estimated Freeway Congestion, 2000

Pershing Square Building—as vulnerable to the adverse effects of Metro Station construction. A proposed entrance to the downtown Metro stop at Fifth and Hill would come up through the ground floor of the Title Guarantee Building, unavoidably altering part of the structure and introducing visual and aural elements out of character with the building. The Pershing Square Building across the street faces the same predicament, except that the entrance in question is being proposed for future expansion.

At Union Station, the Metro stop was designed to impact the site as little as possible. Bob Pigati, AIA, of Harry Weese & Associates, the project manager for Union Station, said, “The main terminal building won’t be touched at all.” The station is located under existing trackage, and will be dug in segments so as not to disrupt present rail service. Construction of one of the entrances, however, will necessitate removal of a baggage shed, which will be restored. To preserve the integrity of these historic buildings, the EIS states that all new construction must be made compatible in terms of scale, massing, color and materials with the original structure, and attempts must be made to salvage as much of the original architecture as possible.

The basic design for the Metro stations, created by Harry Weese & Associates, has several standardized elements:

- a plaza-type entrance into an existing or planned development (instead of on-street entrances, which are being discouraged);
- a mezzanine to serve as a fare collection area;
- 450 foot platforms which can accommodate six 75-foot-long Metro cars; and
- various equipment spaces to house facilities such as traction power substations, electrical distribution rooms and fan rooms.

Standard design was chosen by SCRTD for its economy and its increased efficiency in moving people in and out of the Metro. The *Los Angeles Times* reported that architects involved in design are privately concerned that SCRTD guidelines are not flexible enough to reflect the distinct personalities of the surrounding neighborhoods. One architect was quoted as saying that Metro’s station-in-a-box design “won’t say anything about LA.” But the opportunity for joint ventures between SCRTD and developers in actual station construction may pry the lid off the box somewhat.

SCRTD is trying to set up a separate governmental entity, tentatively named Transit Corridor Development Corporation (TCDC), to represent all City and County planning jurisdictions, and the Community Redevelopment Agency in executing future agreements with developers. To operate effectively, SCRTD is proposing that TCDC:

- plan, coordinate, and write a comprehensive Station Area Master Plan;
- have the authority to alter station design and location of entrances;
- establish predictable timetables for making decisions, so that proposals can move ahead without unforeseen delays;
- negotiate connector fees and land lease/air right agreements, which alone are expected to bring in \$6.7 million in revenue; and
- infuse public money into development on a co-venture basis, when deemed necessary.

SCRTD is not wasting time, either. It already has entered into its first joint development with Parklabrea Associates as a result of having to relocate the Wilshire/Fairfax Station because of its paleontological significance. Parklabrea Associates will share in the construction costs of the station, saving SCRTD some \$30 million. An entrance will be built right into the May Company store. (In other Metro cities, stations placed in department stores have significantly increased retail sales.) “A unique feature of this agreement,” said SCRTD’s General Manager, John Dyer, “is that Parklabrea will set aside up to 20,000 square feet of enclosed storage space for 15 years for any fossils unearthed during station construction.”

This joint development is very important to SCRTD as a means of deferring Metro’s costs. Downtown office space is expected to increase 3 million square feet by the year 2000, simply in response to the Metro. But through active pursuit of joint development, SCRTD expects to boost that number to 7 million square feet. The State Legislature also has given SCRTD the authority to set up Special Assessment Districts to tax the windfall in property values expected to occur to parcels adjacent to the Metro. These Districts may bring in between \$26 and \$53 million in new revenues for SCRTD by the year 2000.

How realistic are these plans? Will new economic blood be effectively pumped back into the heart of southern California’s sprawling metropolis through Metro-related development? California’s other subway system—BART (Bay Area Rapid Transit)—provides a functioning model of the impact a subway system can have on regional growth.

When BART broke ground in June of 1964, it was the largest locally-financed construction project ever undertaken, and the first subway system to be built in the United States in over 60 years. The \$1.7 billion price tag would cost \$5 billion today and, unlike LA’s Metro, the 71.5 mile regional system was built all at one time.

BART's impact on development was painfully slow in coming. In its early years, technical troubles caused performance problems that kept BART's patronage figures low. BART seemed jinxed by a series of freak accidents that made the headlines: a Fremont train ran off the end of the line when the computer refused to recognize that there were no more tracks; the Automated Train Control (ATC) showed "ghost" trains on unoccupied sections of track; and a near-disastrous fire swept a BART train stalled in the Transbay Tube.

But as BART engineers gradually made improvements in the system, the length of time patrons had to wait for a train decreased and ridership began a steady climb. By 1983, BART had over 55½ million riders. New patrons began to switch from their cars to mass transit. As a result of increased patronage, areas around BART stations have developed like gang busters.

The Market Street Corridor in downtown San Francisco is experiencing an office building boom unparalleled on the West Coast. Since BART, the average annual growth rate for new office space in downtown San Francisco has been 1.7 million square feet, doubling from its pre-BART figure to 55 million square feet in 1983. With commuters riding BART, the Planning Commission was able to waive the usual parking requirements for downtown projects. Across the Bay in Oakland, an active redevelopment program is taking similar advantage of BART. (See "Oakland Renaissance," *Architecture California*, September/October, 1982.)

Further out along the line, however, development around BART stations is markedly different. At the end of the Fremont line in southern Alameda County, BART has not stimulated commercial growth. The area around the station still serves largely as a parking lot for commuters. Much of the land remains undeveloped. At the end of the line going north from Oakland, in the City of Richmond, area redevelopment is going very slowly, and there has been no appreciable increase in land values around the station. "BART can't reverse conditions of blight," pointed out Kathy Ogden, Director of BART's Joint Development Department.

But on the other side of the Berkeley Hills—around Walnut Creek, Pleasant Hill, and at the end of the line in Concord—development has been rapid. In the "Golden Triangle," an area around Walnut Creek's BART station, two new mid-rise buildings went up last year, and three more presently are under construction, adding about one million square feet of new office space to the area. According to Walnut Creek City Planner Jerry Swanson, this development "would not have occurred without BART."

Not all the communities around BART stations saw development as desirable. The Glen Park area in San Francisco and the City of Lafayette in Contra Costa County are two communities that downzoned in response to citizen demands that BART not affect the residential character of their neighborhoods. To that end, the downzoning has been successful. But in areas where growth has not been intentionally limited, the indicators point to overall increased density and rising property values around BART stations.

Experience from BART and other new subway lines in Atlanta, Washington, DC and elsewhere form a pool of knowledge that SCRTD can draw upon to ensure the Metro's success. The people of Los Angeles should be moving into the 21st Century with a more efficient, ecologically sensitive means of getting around town, and a blueprint for directing future growth.

Kelly Collins is assistant editor of Architecture California.



Station Architecture and Engineering Firms for Los Angeles Metro Station Design and Tunnel Construction

1. **North Hollywood Station**
Hugh and Donald Gibbs, FAIA, Long Beach
2. **Tunnel-North Hollywood to Universal City**
PAE International/William Hirsch, AIA, Architects/Stevens & Wilkinson, Inc., Los Angeles/Los Angeles/Atlanta, GA
3. **Universal City Station**
Luckman Partnership, Los Angeles
4. **Tunnel-Universal City through mountains**
Transit and Tunnel Consultants, Buffalo, NY
5. **Hollywood Bowl Station**
Gehry/Warnecke, Los Angeles/San Francisco and Edwards & Kelsey, Engineers, Livingston, NJ
6. **Tunnel-1,250 feet north of Hollywood/Cahuenga**
Stull Associates, Boston, MA
7. **Hollywood/Cahuenga Station**
Stull Associates, Boston, MA
8. **Sunset/La Brea Station**
Carter Engineers, Cypress, CA
9. **Tunnel-Hollywood/Cahuenga to Beverly/Fairfax**
Carter Engineers, Cypress, CA
10. **Fairfax/Santa Monica Station**
Carter Engineers, Cypress, CA
11. **Beverly/Fairfax Station**
Wilshire Design Associates, joint venture, (Maxwell Starkman Associates, Beverly Hills; Post, Buckley, Schuh & Jernigan, Columbia, SC; and Gibbs & Hill/Electrowatt, New York)
12. **Tunnel-Wilshire/Beverly/Fairfax to Wilshire/La Brea**
Bechtel Civil & Mineral, San Francisco
13. **Wilshire/Fairfax Station**
Bechtel Civil & Mineral, San Francisco
14. **Wilshire/La Brea Station**
STV Engineers, Pottstown, PA
15. **Tunnel-Wilshire/La Brea to Wilshire/Vermont**
Tudor Engineering, San Francisco
16. **Wilshire/Crenshaw Station**
Turner/Chang, joint venture; Turner & Associates, PC, Washington, DC; Sam Chang, Architect & Associates, Inc., Los Angeles
17. **Wilshire/Western Station**
William L. Pereira Associates, Los Angeles
18. **Wilshire/Normandie Station**
William L. Pereira Associates, Los Angeles
19. **Wilshire/Vermont Station**
Charles Kober Associates/C.E. Maguire, joint venture, Los Angeles
20. **Wilshire/Alvarado Station**
Sverdrup and Parcel and Associates, San Francisco
21. **Tunnel-Wilshire/Vermont to 7th/Flower**
Sverdrup and Parcel and Associates, San Francisco
22. **7th/Flower Station**
Gannett Fleming/Dworsky, joint venture, Los Angeles
23. **5th/Hill Station**
Delon Hampton and Associates, Rockville, MD
24. **Civic Center (1st/Hill)**
Delon Hampton and Associates, Rockville, MD
25. **Tunnel-7th/Flower to Union Station**
Delon Hampton and Associates, Rockville, MD
26. **Union Station**
Harry Weese and Associates, Chicago, Chicago, IL
27. **Central Track Yard and Shops (Union Station)**
Daniel, Mann, Johnson & Mendenhall/Parsons Brinckerhoff Quade & Douglas

CCAIA Honor Awards

Jurors for the second annual Honor Awards Program sponsored by the California Council, The American Institute of Architects were William C. Muchow, FAIA of W.C. Muchow & Partners in Denver, Colorado; David H. Wright, AIA of The Bumgardner Architects in Seattle, Washington; and landscape architect Dan Kiley of Kiley Walker in Charlotte, Vermont.

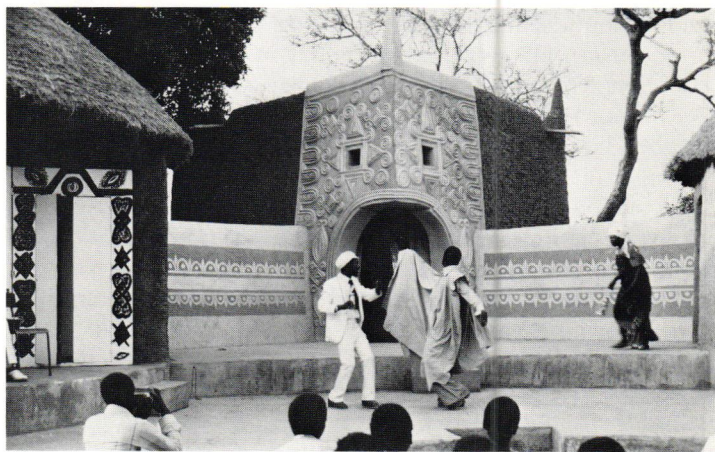
In addition to the Honor Awards shown on the following pages, Merit Awards were presented to the Residence for Lillie Leonard and Charles Hunt in Occidental, Dutcher and Hanf Architects; Malibu Colony Residence in Malibu, Ron Goldman, AIA; Angelus Plaza Elderly Housing Complex in Los Angeles, Daniel L. Dworsky, FAIA & Associates, Inc. in association with William A. Howell, AIA and Ogren, Juarez & Givas, Architect; Chabot Center in Pleasanton, Fee + Munson Architects; Hughes EDSG in El Segundo, Langdon, Wilson, Mumper Architects; High

Meadow Outlook Townhouses in Carmel, Hall Goodhue Haisley and Barker; Greystone in Las Vegas, Nevada, Leason Pomeroy Associates, Inc.; The Atrium at the Mall at 163rd Street in Miami, Florida, Charles Kober Associates and Wolfberg Alvarez Taracido & Associates; Pig with a Purple Eyepatch in San Diego, Pacific Associates Planners Architects, Inc.; Margaret S. Hayward Playground Building in San Francisco, Willis and Associates; St. Matthew's Parish Church in Pacific Palisades, Moore Ruble Yudell; Roberto Adobe Restoration in San Jose, Gilbert Arnold Sanchez Architects, Inc.; Design Professionals Insurance Company Headquarters in Monterey, Marquis Associates; Rare Books and Manuscripts Library at Stanford University in Palo Alto, Interior Design: Marquis Associates, Architects: Hellmuth Obata Kassabaum; The Stern Building at Levi Plaza in San Francisco, Gensler & Associates/Architects; and Giftcenter in San Francisco, Kaplan/McLaughlin/Diaz.

Ahmadu Bello University
Theater-Workshop
Zaria, Nigeria
Steven D. Ehrlich, AIA Architect

Jury Comments: This is the only building we looked at that hasn't been influenced by post-modernism. Every little part you look at—the colors and the decorations—are very sensitive. The finish against the roughness and the outside of this building tie in with its setting. You see a native theater that looks

truly indigenous, even though you know it was designed. The colors and the materials, the construction techniques, even the use appear to be really indigenous. The closer you come to it, the more finesse the materials and design have. This theater touches the symbolism of African life. The mystery of symbolism is integrated into the whole design, which is something we lack so much. This building is more than a stage—it presents a real background for a theater.

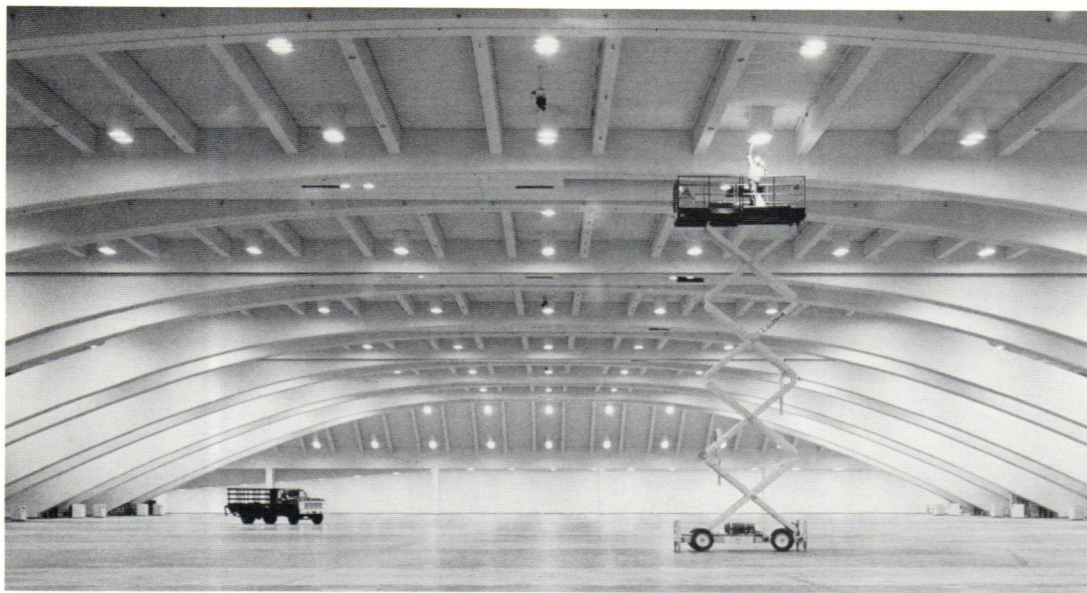


Cleveland Arcade
Cleveland, Ohio
Kaplan/McLaughlin/Diaz

Jury Comments: In order of credit, the honor should go first to the original architect; next, the person who decided they weren't going to destroy it; then, thirdly, the architects who showed a delicate restraint in restoring this beautiful building. More cities with harsh environments should have arcade spaces like this. They're beautiful. In this case, the building is so eloquent, the railings are so richly woven, that palmettos actually diminish rather than add to the structure. The art material actually interferes with the beauty of the architecture.



Thom Abel



George R. Moscone
Convention Center
San Francisco
Hellmuth, Obata & Kassabaum,
Inc.

Jury Comments: The structure is beautiful. The whole building receives you off the street and makes the street itself richer. Ordinarily a building with that kind of volume overwhelms everything around it. The scale is right for masses of people. Many convention centers are so heavy. Just having the interiors all pure white makes the whole structure glow.



Washington-Battery Street
Office Building
San Francisco
Fee + Munson Architects, in
association with Sidney Hoover,
Architect

Jury Comments: This has a very nice light touch as opposed to so many of the heavy-handed vertical buildings. The whole facade is unified and ripples across the

banding. Especially it is a lovely scale, and a very appropriate use of reflective glass with that nice rusticated building across the street. There's glass where there should be and there's masonry where there should be—both are solid. The architects have made the most out of a very small site. Such a simple plan; you wouldn't think you could build a major office building on a 25 foot site and get away with it.



The Federal Reserve Bank of
San Francisco
Skidmore, Owings & Merrill

Jury Comments: The arcade is very powerful. The building and the street level need the power of an arcade like that to relate the streetscape to the tower. This arcade conveys the strength of the Federal Reserve Bank. It is a very intriguing alternative to the pedestrian

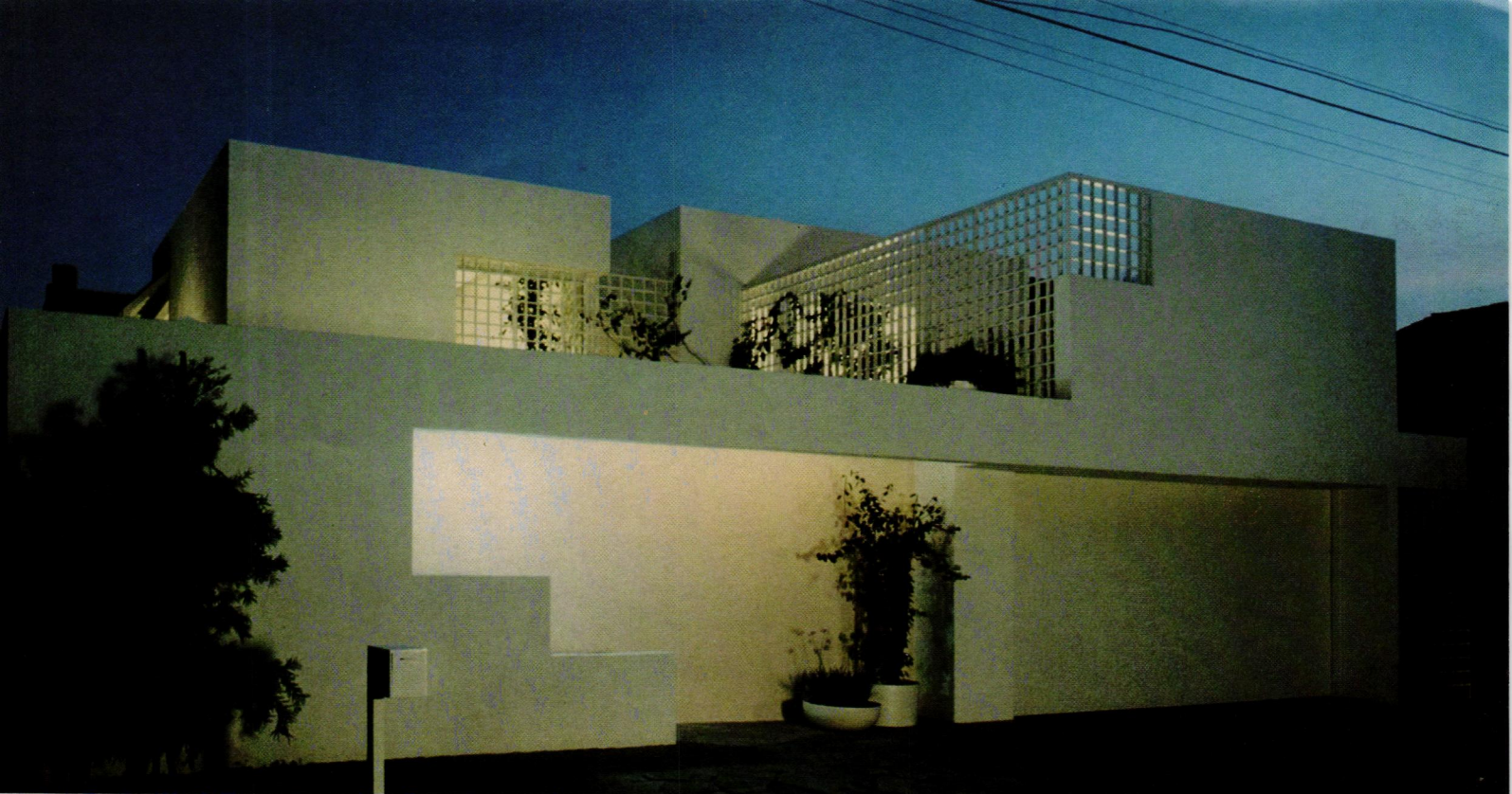
experience. People might well walk across the street in order to use it, just to see what it is like. The design is unusual in its articulation and massing. The building, because of the set back, does not overpower the street, and gives some variety.

Whitaker Photography

The College Preparatory School
Oakland
Dutcher and Hanf, Architects

Jury Comments: The whole site plan, the way it's ordered and the way it expands into the ravine, is excellent. This is an unusually beautiful, sensitive handling of this little ravine site that opens to receive you. The way they used the recycled portable classroom buildings in relation to the new buildings is very sensitive. The buildings are arranged in a loose, lyrical pattern without being stiff. It's vernacular architecture at its best. A great deal of subdued elegance was achieved with throw-away buildings, surplus buildings. The architects are not trying to make a show here. It's a very workmanlike way of going about solving architectural problems, not for the sake of calling attention to yourself, but for the sake of making the most out of what you've got to work with. It seems to be almost the perfect solution, making a warm-hearted environment for the children, and creating a good sense of campus and community in a small space. The main auditorium has an enormous Japanese quality about it. The simple building gets its beauty just from its structure, the rich warm tones of the wood and the pure white walls.





Malibu Cove Residence
Malibu
Ron Goldman, AIA

Jury Comments: This is a very successful Mediterranean building. The entrance is sculpturally handled with the spaces dropping back to present a completely blank facade except for the rich grill up above where bougainvillea can grow. It's an elegant expression of a beach house. The walls are high enough

to blank out the neighbors who are very close on either side, yet the openings allow the landscape to loom up. Being all white with a highly varnished wood deck, it's like a ship; it has the quality of the sea. The residence is unified throughout all its areas. The scene looking from the bedroom is almost a painting in itself. The living room isn't a four-square shape, but expands and moves out into different directions, yet holds its

center with the fireplace. The tendency on a small lot is not to be able to be in contact with nature. Here, you're constantly aware of the sky and nature. That's the real accomplishment.



John Sutton Photography

**Galaxy Theater
San Francisco
Kaplan/McLaughlin/Diaz**

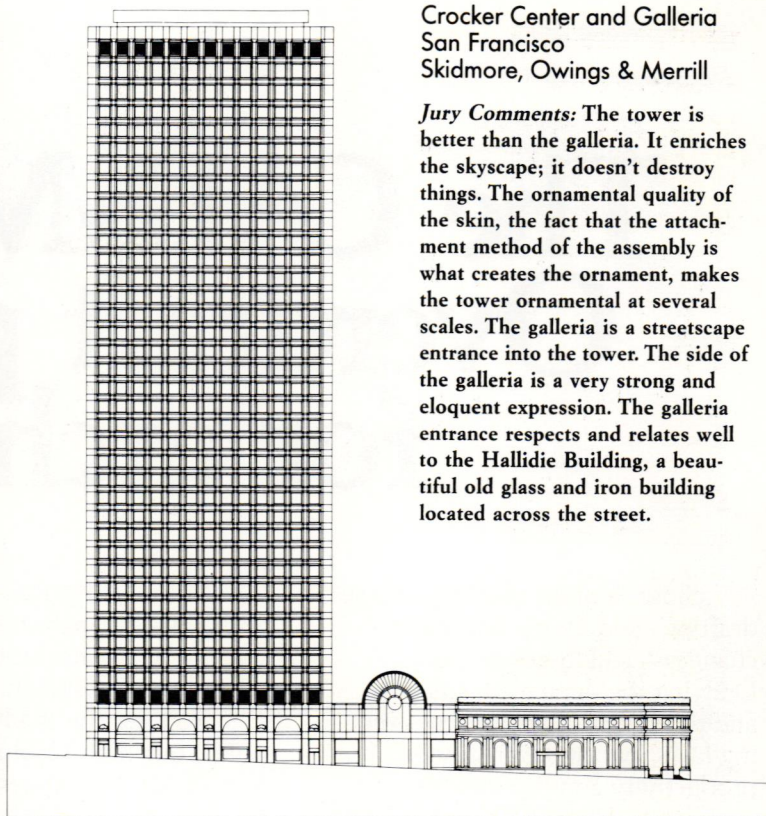
Jury Comments: This theater is just the right kind of architecture for that location on Van Ness. It's a sparkling, brilliant invitation to come there. If it's post-modern, this is where post-modern really comes into its own. The spatial structural quality inside, and the colors, are delightful and very

engaging. It's a great example of how to do a theater—it says entertainment. The integration of lighting with the architecture is really very well handled. But will it be as successful once the signage is complete? The graphics should be congruent with this building; they shouldn't be slapstick. The theater is a sign in itself. The whole thing is a graphic expression of what's going to happen inside.





Peter Aaron/Esto



Crocker Center and Galleria
San Francisco
Skidmore, Owings & Merrill

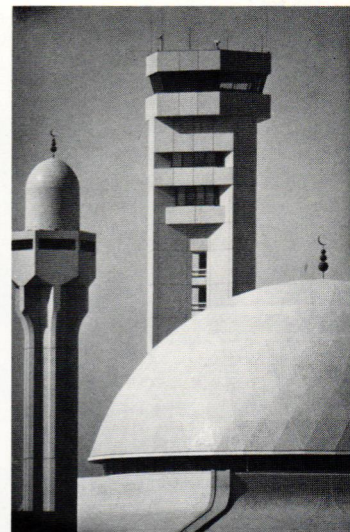
Jury Comments: The tower is better than the galleria. It enriches the skyline; it doesn't destroy things. The ornamental quality of the skin, the fact that the attachment method of the assembly is what creates the ornament, makes the tower ornamental at several scales. The galleria is a streetscape entrance into the tower. The side of the galleria is a very strong and eloquent expression. The galleria entrance respects and relates well to the Hallidie Building, a beautiful old glass and iron building located across the street.



King Khaled International
Airport
Riyadh, Saudi Arabia
Hellmuth, Obata & Kassabaum,
Inc.

Jury Comments: This airport combines strength and opulence befitting its desert siting. It is curious that the photographs don't show any people; the building really

can't be understood without the numbers of people that it's meant to accommodate. Still, you see that it is truly an elegant, astonishing series of spaces. It reads Islamic. The overall design is exquisite. The way the building stretches across the desert and the way the sky comes down to the desert—it's a faceted jewel.



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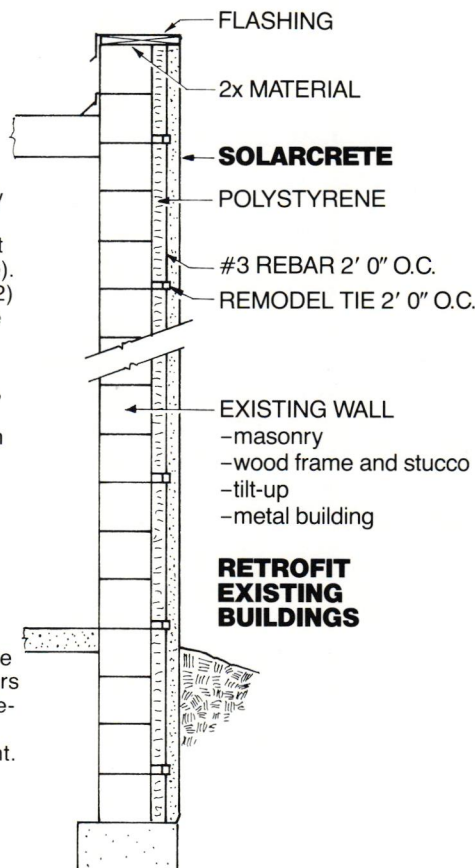
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power on a desktop. Not content to rest on their laurels (16-bit single chip processors have only been in general use for about four years), many chip manufacturers have, or are about to ship, 32-bit single chip processors which will offer the equivalent of a large mainframe computer on a desktop.

The power of a computer is not only measured by its processor, but also by the amount of fast Random Access Memory (RAM) it has available. Here, too, progress has been remarkable. The cost of semiconductor RAM is declining by a factor of 35 percent each year, increasing capacity four-fold every time. Innovations in memory technology hardly are established before they are overtaken by others. 8K (about 8,000 bytes) RAM memory chips became 48K chips in a matter of about eight years, but even these are about to be superseded by the 256K RAM chips. A 64K RAM personal computer was a big deal not very long ago; today's small systems begin at about 128K for the same price. Some small systems such as Apple even have a megabyte (million bytes) memory. The availability of small, powerful computer systems has been made possible by the ability to provide large amounts of memory in a small space at a reasonable cost.

Since the cost of RAM is still rather high, and since the contents of RAM disappear when power is removed, computers need some other means of permanently storing large amounts of information. This is accomplished by the use of disk storage. Disk storage technology also has advanced since the early days of the computer industry, but not in nearly such spectacular fashion as VLSI technology. The reason for this difference is quite fundamental: disk devices are electro-mechanical rather than electronic. They are made up of large numbers of individual parts (many of them moving) which are relatively expensive to fabricate and assemble, and which will eventually wear out. Advances have been made in storage capacity, speed, cost reduction, and reliability. The most important recent technological innovations have been the emergence of the floppy disks and the Winchester disks.

Floppy disks are made of Mylar rather than the more traditional aluminum. The orientation of this technology, since its introduction in the 1970s, has been toward achieving cost reductions. Today's floppy disks have four times the capacity of those made five years ago and sell for one-half the price.

Floppy disks have made disk storage possible on low-cost computer systems, but at a price: reduced capacity, speed, and reliability. Low-cost computer systems using floppy disk storage have

proven adequate for applications such as word processing, where storage and data transfer requirements are moderate. However, their capacity to support intensive applications, such as CAD, which tend to impose heavy demands on the storage system, is very limited.

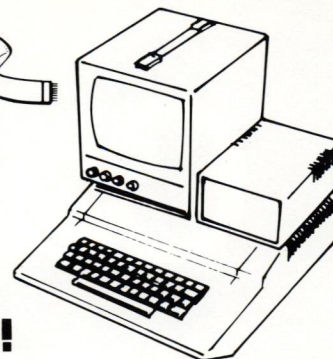
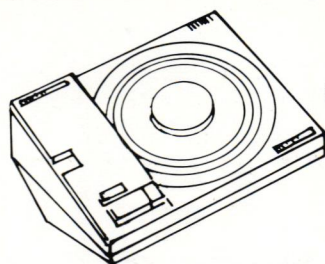
Hard (metal) disk technology, until fairly recently, was limited to the larger, more expensive computers. Hard disks are considerably more reliable, offer greater capacity, and are many times faster than floppy disks. Recent advances in disk technology combined with ingenious engineering and innovative electronics design have resulted in hard disks being scaled down to the size of 5¼ inch floppy disk drives.

Up until the early 1970s, hard disk systems usually had retractable read/write heads and removable disk packs. This kind of technology is still widely used on large systems. The innovation of the Winchester disk drive, introduced for large systems in the 1970s, incorporated fixed heads in a sealed assembly, giving higher speeds with greater reliability. This technology has allowed reduction in the size of disk storage units and substantial cost reductions both on a per-megabyte and a per-drive basis. The cost of a 10 megabyte 5¼ inch Winchester disk is five times that of a 400K byte floppy drive, but the Winchester disk offers 25 times the storage capacity. Winchester drives for small computers now offer from five to 20 megabytes of storage, and the capacities are becoming even larger—a leading manufacturer recently announced a 135 megabyte 5¼ inch Winchester drive.

All the radically new technological improvements mentioned above are being or have been incorporated into new, very small computers that are *extremely* powerful and *very* cheap. For instance, Digital Equipment Corporation's popular VAX line of 32-bit minicomputers (the basis of most leading CAD systems) has been extended by the addition of the "micro-VAX" computer that stands on the floor under a desktop. All other major manufacturers have followed suit, and a host of newer companies are getting into this area, offering very competitive hardware at less cost.

This year will see a major change both in the costs of computing and the number of people reaping the advantages of these new developments. Architects will be no exception.

Eric Schreuder is an associate at The Computer-Aided Design Group in Santa Monica, where he is a consultant in selection and application of computer systems and a principal systems analyst and software developer. Mr. Schreuder is a registered architect in South Africa.



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